

# Clinical Medicine and Surgery

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## William Harvey and the Circulation of the Blood

**B**ETWEEN the time of Galen and the end of the seventeenth century, two great names stand out in the history of medical progress: Andreas Vesalius, the father of anatomy, and William Harvey who, by his demonstration of the circulation of the blood, made possible the development of modern physiology.

Harvey was born in Folkestone, England, April 2, 1578. He studied medicine in Cambridge and later in Padua, Italy, where he was a pupil of Frabricius.

Upon his return to London he was made Professor of Anatomy in the College of Physicians and attending physician to St. Bartholomew's Hospital. He was physician to James I and Charles I.

Harvey practiced medicine, more or less, until the storm of vilification which followed the announcement of his great discovery drove away most of his patients, but his heart was never in his clinical work, as has been the case with many of the world's great medical investigators.

Many interesting facts regarding the heart and blood vessels had been observed before Harvey's time. Sylvius had described the foramen ovale of the fetal heart; John Winter worked out its muscular functions; Fabricius, Harvey's teacher, had given a good account of the valves in the veins. It

is hardly possible that some inkling of the truth had not entered the minds of these earnest and profound students. But it remained for Harvey to demonstrate the fact that the blood passes out of the heart through the arteries and, after traversing the body, returns through the veins, with such complete thoroughness that his ideas withstood the combined attacks of ignorant professional jealousy and ecclesiastical superstition—for the churchmen of those days were deeply and antagonistically concerned with any new announcements regarding the structure and functions of the human body.

Harvey's theories regarding the circulation were, no doubt, known to his students for some time before he startled the world by the publication, in 1628, of his epoch-making book, "*De Motu Cordis*."

At the age of 73 he completed his demonstration of the pulmonary circulation and of the impermeability of the interventricular septum, so that there remained for later students to discover only the part played by the capillaries and the details of the lymphatic circulation in order to complete the picture of cardiovascular physiology, in its broad outlines. And, remember, all this work was done before the microscope came into use!

In remembering Harvey as the discoverer of the circulation, many forget that he was also the founder of our present-day ideas of embryology. Up to his time Aristotle's teaching that the complete individual existed, preformed, in the egg, was universally accepted. But Harvey upset all this, even without the help of the microscope, by showing how germination begins from the union of the male and female elements, proceeding in a regular and orderly fashion, and by the announcement of his famous doctrine of *omnis vivum ex ovo*.

Harvey was a truly great and learned man, modest, retiring, honest, beloved by his associates and filled with the courage of his convictions, so that he stood firmly by his ideas through all the storms of fanatical opposition which roared about him.

In person, as described by Aubrey, he was short and swarthy, with bright, black eyes and hair. He was lively in his movements and keen and incisive in his thinking; quick tempered and ready for an argument.

He died in 1657, at what was then considered the very advanced age of 79 years, having lived to see his ideas triumph over all opposition and gain the acceptance of all scientific and thinking men.

When we think of the immense and varied resources at our command today and the extreme paucity of the facilities available in Harvey's time, we are overwhelmed with wonder at the courage, vision, bold imagination and herculean labors which enabled him to controvert successfully all the established traditions of his day and lay the foundations for much of the most important research of the twentieth century.

The really great difficulty about all work is in giving yourself up to it.—Dr. Horace Carneross.

### SOLANINE

Solanine is an alkaloid found in all the *Solanaceae*, or members of the night-shade family. It is present in the horse nettle, "deadly nightshade", in the sprouts and green skins of immature potatoes and particularly in *dulcamara* or bittersweet. In medicine the salts, especially the hydrochloride, are used.

This drug is present in only the minutest quantities in mature potato tubers, but is found, chiefly in the skin, in young potatoes exposed to the sun during growth, and having a green appearance. Rotting potatoes and sprouts also contain solanine, and neither these nor the green potatoes should

be used as food; or, if they must be so used, they should be peeled and boiled, carefully discarding the water in which they have been cooked.

**Physiologic Action.**—Solanine depresses or paralyzes the central nervous system, without affecting the peripheral nerves or the voluntary muscles. It slows the heart and respiration; lessens sensibility; depresses the temperature; and causes weakness, labored breathing, nausea, vomiting and drowsiness, but no true sleep. In ordinary doses it acts as a sedative and mild narcotic, with distinct *anaphrodisiac* effects. It does not affect the pupils or stimulate the action of the bowels, kidneys or skin, when given in therapeutic doses.

**Poisoning.**—The toxic effects of solanine resemble those of saptotoxin. It is a powerful protoplasmic poison. The symptoms of poisoning are: an acrid, burning sensation in the throat; great restlessness with muscular and fibrillary tremors and later, tonic and clonic convulsions; labored respiration; dryness and hyperesthesia of the skin; rapid pulse; collapse and coma, the temperature falling markedly before death. Albuminuria and dilatation of the pupils usually occur and severe gastrointestinal symptoms are not infrequent. Death is due to respiratory failure. The lethal dose is not known exactly but is probably about 5 or 6 grains (300 to 450 mgm).

**Antidotes.**—There is no chemical antidote for solanine. The physiologic antidotes are *atropine*, *strychnine*, *caffeine*, *morphine* and *pilocarpine*, hypodermically and *diffusible stimulants* by mouth, after gastric lavage has been done. The patient must be kept warm, and hot tea and coffee are frequently helpful. Meet the symptoms which appear.

**Therapeutic Uses.**—Being a mild but effective analgesic, antispasmodic and general sedative, solanine is useful in many painful conditions and cramps, particularly in the gastrointestinal system. It may be given where morphine is contraindicated.

It has been recommended in the treatment of *gastralgia*, alcoholic gastritis, gastric ulcer, *neuralgia*, gout, *cystitis*, *bronchitis*, *whooping-cough*, asthma, vomiting of pregnancy, rheumatism, *nervous irritability* (especially *sexual erethism*), etc.

It has been recommended and used to replace the bromides in the treatment of *epilepsy*, and is probably more effective and satisfactory than those salts, but inferior to phenobarbital ("luminal").

Effective use may be made of solanine by employing it to replace the derivatives of opium in prescriptions for the relief of irritative, painful and unproductive cough, especially when occurring in children.

*Dosage.*—This drug, when used, should generally be given in small and frequent doses until therapeutic or physiologic effects are produced, the latter being shown by a burning, acrid sensation in the throat or marked drowsiness; the dose should then be decreased or the intervals lengthened to keep just short of these effects. It is *not* cumulative.

The average single dose is 1/6 to 1 grain (10 to 60 mgm.) for an adult, not exceeding 6 or 7 grains a day; but it is frequently better to give smaller doses (1/20 to 1/10 grain) every 10 to 20 minutes until results are obtained, when giving solanine in painful conditions, asthma, etc. In epilepsy, mania, nervous excitement and the like, full doses should be administered.

Children require much smaller doses (1 mgm.—1/64 grain), every hour or two, in whooping cough and other conditions, continuing or increasing to effect.

While the newer investigations have furnished us with many valuable synthetic drugs, there still seem to be distinct indications, in certain cases, for the employment of solanine and physicians should be more familiar with its powers and effects.

The less alcohol and opiates a doctor requires in his practice the better doctor he is.—Dr. Bernard Fantus.

### MUCKRAKING THE ILLUSTRIOUS DEAD

There are some pinched and purblind souls who seem to feel that, if they can prove that those whom the world delights to honor were as frail and unworthy as they are, their own honor and status in life will be, somehow, enhanced.

Of late there has been an effort to show that Gladstone, one of the greatest statesmen England ever produced, was something of a free-lover; and that Washington was overfond of a dram and a lass and indulged in profane language upon occasion.

In the name of right and justice and common sense, *what does it matter?* They have left this scene of activity, for the time being, at any rate, and if they made mistakes they are suffering or will suffer the results. In any case, they made *other things* besides mistakes—things which this world could ill afford to have done without.

Even if Gladstone had kept a whole harem of concubines, that did not alter the fact that he held the helm of England's destiny firmly through troubled waters, where a weaker hand might have steered her to destruction.

Even if Washington did permit himself moments of ethylic exaltation and was a judge of pink cheeks and well-turned ankles; even if, under the stress of the moment, he took his Lord's name in vain, the fact remains that, without his courage, coolness, determination, sound business sense and sheer force of personality, this Country that we love might well be, today, a colony of another power instead of a free and independent nation.

It takes a MAN to do a man's work; and, since we have not yet, as a race, developed to the level of the saints and the angels, it follows rather regularly that those who are big enough in the worthy and laudable qualities of manhood to make a dent in the world's history are quite liable to be big also in some of the other characteristics of masculinity which, to lesser souls, seem wholly undesirable.

The ones who cavil at what they call the frailties and missteps of the great are generally the ones whose bowels are so meager and jejune and whose blood is so tepid and sluggish that they never felt the urge or had the courage to violate any of our man-made conventions, and never had the spirit to become sufficiently notable, even in a small sphere, to attract attention to their little, selfish and pusillanimous peccadilloes.

Most real men would refuse to listen to slanderous gossip about a living friend (even if it were true); and the old Romans, upon whom some of us rather look down as an uncivilized race, had a motto *de mortuis nil nisi bonum*.

The great men of all time are our friends, because they have made possible our life of today which, while far from perfect, offers better conditions to more people than have ever been offered before during historic times. Perhaps—probably—they had their faults and failings. Most of us do! Their faults were insignificant; their virtues made them great and the world better.

When these muckrakers among the historic tombs attempt to pour their pestiferous insinuations into our ears, let us look at them as we do at the furtive "gent" who tries to whisper a slimy story, and turn away with pity in our hearts that

there are those so blind and small of soul that they can be happy in digging for grubs around the base of a towering and noble monument.

Inactivity, from fear of committing a fault, is the mark of a coward. O brother, by whom is food renounced for fear of indigestion?—Sanskrit Proverb.

### MEDICAL ARTISTS

Medicine will, we firmly believe, remain, to a considerable extent, an art so long as there are sick human beings, with all their personal and unique foibles and idiosyncrasies, to be taken care of.

But he who confines his knowledge and appreciation of art strictly to the art of medical practice is hampering his broad development as a human being and restricting his capacity for sound, worthy and permanent enjoyment.

A considerable number of physicians have made an enviable place for themselves in the world of literature—poetry, essays, fiction—notable among whom were Oliver Wendell Holmes, S. Wier Mitchell and, more recently, Joseph Collins; but the members of the profession have by no means confined themselves to the artistic use of words.

At the New York Academy of Medicine was held recently an unusual exhibition, consisting of the work of contemporary American physicians in the graphic and plastic arts, including painting in oils, water-colors and pastels, sculpture, etching, photography, book-binding, wood carving, metal work, etc., and this was, we are led to believe, a collection in which the trained art critic could find much of permanent interest and value.

Nor were these things all done by men who are so unoccupied with their professional labors as to be searching for some way to kill time. Most of the artists are busy and well-known physicians, among whom may be mentioned Chevalier Jackson, R. Tait McKenzie and S. Solis Cohen. Readers of this journal will recognize the names of Alfred J. Asgis and Milton Cohen, which were also on the list.

It may also be of interest to note that Max Thorek, whose articles appear in our pages, from time to time, is internationally known for his exquisite work in artistic photography and is a competent and well-trained violinist; and that Burton Hasteltine, whose name is also familiar to our readers, has published several volumes of beautiful and artistic poetry.

The successful physician must be far more than an accurate compounder of drugs or a dextrous manipulator of normal or pathologic human tissues. He must have a deep and abiding knowledge of and sympathy with human nature and the nature of the universe. And where can these attributes be acquired so readily as by the contemplation or the production of those works which are the expression of all that is universal in man, and which we call art?

There are, no doubt, many unknown artists—poets, painters, sculptors, musicians—among our ranks; and there should be more. Our daily labors are such as to open and develop those higher faculties of insight, tolerance, wisdom and compassion by whose exercise alone true art becomes possible.

Let us not feel ashamed or diffident to confess that we are, at heart, artists. Let us proclaim it boldly, develop such talents as we may possess to the highest possible point, and take our places among those who are contributing, not only materially but also spiritually, to the world's joy and enrichment. By so doing, we will enlarge our own powers for usefulness and for happiness and become better citizens and better doctors.

Let us believe in Art, not as something to gratify curiosity or suit commercial ends, but as something to be loved and cherished because it is the Handmaid of the Spiritual Life of the age.—George Innes.

### SPECIFYING ON PRESCRIPTIONS

When a citizen who has become acquainted with the medical men in his community, and found that one of them understands his constitution and its needs, falls ill, he does not simply call "a doctor"; he calls Dr. Smith or Dr. Brown. It may be, of course, that Dr. Jones or Dr. Black would serve his purpose equally well, but he *knows* what his own doctor can do and hesitates to change in an emergency. He is wise.

The purveyors of lubricants are decrying the foolishness of the motorist who asks for a "quart of oil" and urging that he familiarize himself with the merits of some particular brand and then *specify* it when ordering.

There is almost as much variation in the quality of drugs put up by different firms as there is in that of medical services, and probably far more than there is between various brands of motor oil; and yet many physicians continue to prescribe 10 grains of this and a dram of that and an



ounce of the other without knowing whose brand of these ingredients will be dispensed by the pharmacist, and hence with little clear certainty of the results to be expected.

Many pharmaceutical houses put out drugs of a high standard of purity and potency; some do not. Do you know *whose* quinine or acetylsalicylic acid or typhoid vaccine your patient is getting?

Perhaps you have used a drug manufactured by Blank and Co., and found it thoroughly satisfactory. Maybe Dash and Sons put up just as good a preparation, and perchance that marketed by Doe Bros. is cheap, inert and worthless—you don't know. Wouldn't it be safer and wiser to specify the brand you have tried and proved?

When you have found a preparation whose quality is satisfactory—that *does the work*—the price cuts little figure—as little as when a man is buying candy or flowers for his sweetheart, or even less. The best is none too good for a sick man.

Investigate the drugs of the various manufacturers. Do not stop short of finding those that do what you want and expect them to do, and *nothing else*. And when you have found them, insist that your patients receive these drugs and *no others*. You owe this much thought and attention to your own professional reputation as well as to the welfare of those who depend upon you for aid.

In every branch of life expertness comes only after prolonged effort.—W. F. F. Shearcroft.

### LEADERS MUST BE RIGHT

When the man at the tail end of the procession wanders off down a side alley it makes little difference, because no one is following him. When, however, the drum-major takes the wrong turning the whole parade goes off its course, because *all* are following him. The nearer a man is to the head of the column, the more important it is that he know where he is going and how to get there, for the greater will be the number of people who are looking to him for guidance.

If one of us ordinary mortals had made a careless remark about chloroforming people over sixty, nobody beyond the sound of our voice would have heard of it; but when Osler facetiously suggested euthanasia as a remedy for senectitude, it was taken seriously, because the great leader said it, and the echoes of that thoughtless

speech have not ceased reverberating even yet.

It is a bit difficult for a man to form an unbiased idea of his own position in life's parade, but it is safe to assume that *every* physician, by virtue of his education and training and relations with the people, is more or less of a leader in his own community; and the extent to which he leads depends largely upon the degree to which he realizes and assumes his proper responsibilities.

The doctor should, beyond doubt, be *the* leader in matters of public health and the physical well-being of the people. He should also be prominent in all activities pertaining to educational, social and civic betterment. If he is not doing these things he is shirking an important part of his job.

Let us, then, look into those subjects until we have a real basis for sound opinions—until we have a little better than a 50-50 chance of being right—and then assume the place of leadership to which we are entitled and in duty bound, constantly striving to be *nearer* 100 percent right every year.

You must add to scientific training something of literature and the ideal, otherwise your science will tend to produce vulgarity and lack of the wider understanding of human life.—Annie Besant.

### REVITALIZATION

The term, rejuvenation, has been so freely and so loosely used, of late, that a good many physicians are coming to consider it a joke. It has even been spread all over the newspapers, in connection with lurid stories of wierd operations, so that, when the wise layman hears it he winks and says, "I know—monkey glands".

This type of undesirable publicity is, perhaps, inseparable from modern journalism, but its results have been deplorable because, in the wholesale condemnation of indefensible and quackish methods, some procedures which appear to be decidedly useful have been thrown overboard along with the professional rubbish.

Rejuvenation implies that the individual is restored to the status of youth or is actually made younger. If this happened, he would make a fresh start from his new point of departure and live out the rest of his life from his new age plant—consequently living longer. Modern medicine and surgery seem to have been no more successful in bringing about such a result than were the investigations of the ancient alchemists or the explorations of Ponce de

Leon. Hygiene and sanitation have, indeed, lengthened the *average* life considerably (chiefly by reducing infant mortality); but the man of sixty-five or seventy has little greater life expectancy than his great-grandfather had at the same age.

If, then, we are unable definitely to lengthen the life of the man who has passed his prime, is there nothing to be done for him?

By no means! The later years of a man's life should be the most fruitful years, because he brings to bear upon his problems a large fund of experience and a ripened judgment. That they are not always so is due, in large measure, to the fact that his physical organs—especially the endocrine glands—have deteriorated to the point where they are unsatisfactory vehicles for the expression of his mature intellect. If we are able to revitalize a man's body, so that his later years, while no longer, will be *more active*, we will perform a vast service to the man and to humanity in general.

There now seems reasonably sound evidence to the effect that such restoration of vitality is possible, in men, by the ligation and partial resection of the vas deferens (known as the Steinach operation), and in women, by exposing the ovaries to mild doses of x-rays or, possibly, to heat, by means of diathermy.

The clinical evidence of the favorable results of these procedures is now so ample that it cannot be overlooked. At the recent Congress on Sexology, in Berlin (a report of which appeared in this journal for May, 1927), the work of Steinach received full recognition, even by his most bitter opponents, and those who have followed his methods in this country (notably Dr. Harry Benjamin, of New York) have given us a rather large literature in our own medical periodicals which is available for study by all who are interested.

The effects of vasoligation or the exposure of the gonads to x-rays seem to be a revivification of the interstitial tissues of those organs (sometimes known as the puberty glands), with resulting stimulation of the entire endocrine system and a consequent, more or less complete, restoration of the mental and physical powers formerly possessed by the individual. Contrary to the general belief, a marked return of sexual desire and ability is not at all a

regular occurrence (though it sometimes happens), the change in the general physical vitality being the most common and notable result.

X-rays, except in the hands of highly trained roentgenologists, are by no means free from danger. Diathermy, which may prove to be more or less effective, is safer. No ill results from the Steinach operation have been reported, even in cases where it did no good. Gland transplantation must still be considered as being in the experimental and controversial stage.

It appears that the time has come for the medical profession to discard the doubtful word, *rejuvenation*, as applied to the results of medical or surgical procedures, and adopt the sounder and more defensible term, *revitalization*, thus removing our activities from the popular domain of charlatany.

It has long been known that elderly persons could be given a new lease of life by changing their entire surroundings and outlook or by giving them new interests and purposes. Such individuals, under such circumstances, will frequently gain weight and appear many years younger than they did before. They may, indeed, actually *live* longer, and so justify the statement that they have been rejuvenated.

Unfortunately, it is difficult and often impossible to give the jaded and prematurely old man or woman a new world in which to live. If, however, by some relatively simple and comparatively harmless procedure, we are able to revivify his flagging physical forces so that his zest in life and powers of accomplishment are, to a certain degree, restored, his outlook may be so altered that his old world appears new. Are we justified in withholding such assistance?

As matters now stand, we believe that every physician should familiarize himself with the work which has been done in connection with revitalization and, if the evidence seems convincing, should immediately qualify himself to carry out the necessary procedures or to recommend to his patients someone who is capable of doing so.

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There are always plenty of people to rear the sepulcher of honor to the name of the prophet of the past; how few, in any age of the world, have recognized the prophet of their own day!—Annie Besant.

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The big problem today is not so much to learn new things as to apply what is already known.—O. H. Cheney.

## VIVISECTION

A certain number of well-intentioned (we hope!) and enthusiastic persons—mostly women who prefer poodles and Pekinese pups to babies—the profundity of whose ignorance or misinformation is exceeded only by their sentimentality, are circulating considerable numbers of lurid tracts about the Country, in which they denounce all forms and varieties of "vivisection," under which heading they include, with a lack of logic which is scarcely unexpected, not only the forms of animal experimentation which require no surgical procedures, but also the use of serums and vaccines.

We have studied a good deal of their literature rather carefully to see what facts, if any, they have to sustain their arguments, and we find that a good deal of their material is based upon downright falsification or perversion of facts and the rest is of such a nature that it could not be upheld in a group of intelligent and thoughtful eighth-graders, provided the truth were honestly and fairly presented.

Their first attack is upon the use of animals for experimental purposes in surgery, physiology, pharmacology and other scientific research work. Their pamphlets are illustrated with frightful pictures, some of which are photographic (though the most effective and heartrending ones are purely imaginative sketches), purporting to portray the awful sufferings of dumb brutes at the hands of callous butchers who torture them merely for the unholy joy of seeing them suffer.

The text accompanying these pictures implies that most, if not all, physicians maintain torture chambers in their basements, to which they retire after the fatigues of the day, to refresh themselves by dislocating the legs of a few dogs and poking about aimlessly among the inwards of a couple of cats, lashed to a table and screaming hideously.

Several important facts they overlook entirely. First, that in all animal experiments requiring surgical manipulations, the animals are as carefully anesthetized as are human beings, prior to operation; second, that few physicians (scarcely more than one percent, if even so many) ever make any animal experiments after they leave college; third, that if the science of healing is to progress, the effects of new drugs and new surgical methods must be tried—if not on animals, then on human beings; fourth,

they blithely deny, in the face of all statistics, that any progress has been made in the prolongation and amelioration of human life since the time of Pasteur. They overlook many other obvious matters, also, whose mere recital would constitute a considerable brochure.

In this matter we are almost willing, however, to go a step or two with them. We are not fully convinced that material good accrues from the performance of animal experiments before classes, merely for demonstration purposes, or from the performance of such experiments by students, except those who purpose to devote their lives to research work and must, therefore, learn the technic. The performance, by expert investigators, of experiments to elucidate the physiologic activities of the body, to ascertain the properties of new drugs or to perfect improved surgical procedures is, however, quite another matter, for these lead, directly, to the improvement of human life and health.

We will not assault the intelligence of our readers by a discussion of the startling claim of the antivaccinationists (who are, by the way, part and parcel of the antivivisectionists) that the promulgation of the part played by bacteria in the causation of disease is a stupendous fake, organized and promoted by the medical profession for its own financial enrichment. The facts in the case are so obvious and so well authenticated that every high-school freshman who has not been blinded by hysterical propaganda knows them well.

An example of the methods used may be of interest. One of their pamphlets is entitled, "Amazing Official Admission that Antityphoid Vaccination Fails Among Our Troops at Home and Abroad." The "amazing admission" is a quotation from a sanitary order issued in France enjoining care and cleanliness and calling attention to the fact that vaccination does not *always* provide *complete* immunity against typhoid *in the presence of gross infection*. Every schoolboy knows the story of the camps at Chickamauga, in 1898, with its thousands of cases of typhoid and hundreds of deaths; and at San Antonio, in 1911, with its *two* (imported) cases and no deaths—the result of antityphoid inoculations.

Every physician knows the story of smallpox before the time of Jenner and today and how, from being one of the great scourges of childhood, 25 years ago, diphtheria has now become a relatively harmless

disease and is rapidly disappearing, due to immunization with toxin-antitoxin. Doctors also know that the dire effects of vaccination and of serums, painted by our hallucinating brethren, are pure bunkum.

As to the ethics of the matter, everyone recognizes that heedless or deliberate cruelty is a *crime*, and all medical men know that those who practice it are savages or mentally diseased persons (little children falling under the head of savages). The sane and orderly practice of animal experimentation for definite purposes is quite another matter, and many of the world's most prominent vivisectionists are kindly, gentle and altruistic men and women who suffer with every unavoidable pang which is inflicted upon the subjects of their labors.

There are, to be sure, certain zoophiles to whom the sufferings of a baby or a strong man are of vastly less importance than are those of a frog or a guinea-pig. Such psychopathic persons are, however, rare, but they make up in clamorous and perverse vociferation what they lack in numbers.

To be perfectly fair (which is, it seems, as far as possible from the intentions of the average antivivisectionist), there should be published, alongside of every picture of a suffering dog or rabbit, a picture of a baby suffocating with diphtheria, a young girl rotting with small-pox or a man in the last stages of cholera, for whose agony the animal has made (and this is said in all reverence) a vicarious atonement.

Nor are human beings the only beneficiaries by the sacrifice of a few animals. For every dog and cat that has suffered and died in the cause of science, scores and hundreds of other four-footed beasts have been saved and made healthier and happier as a result of the knowledge gained by its pain or destruction.

And then, a word or two regarding authorities. The antivivisection literature teems with quotations from "prominent physicians" and other "eminent persons"—few of whom were ever heard of before

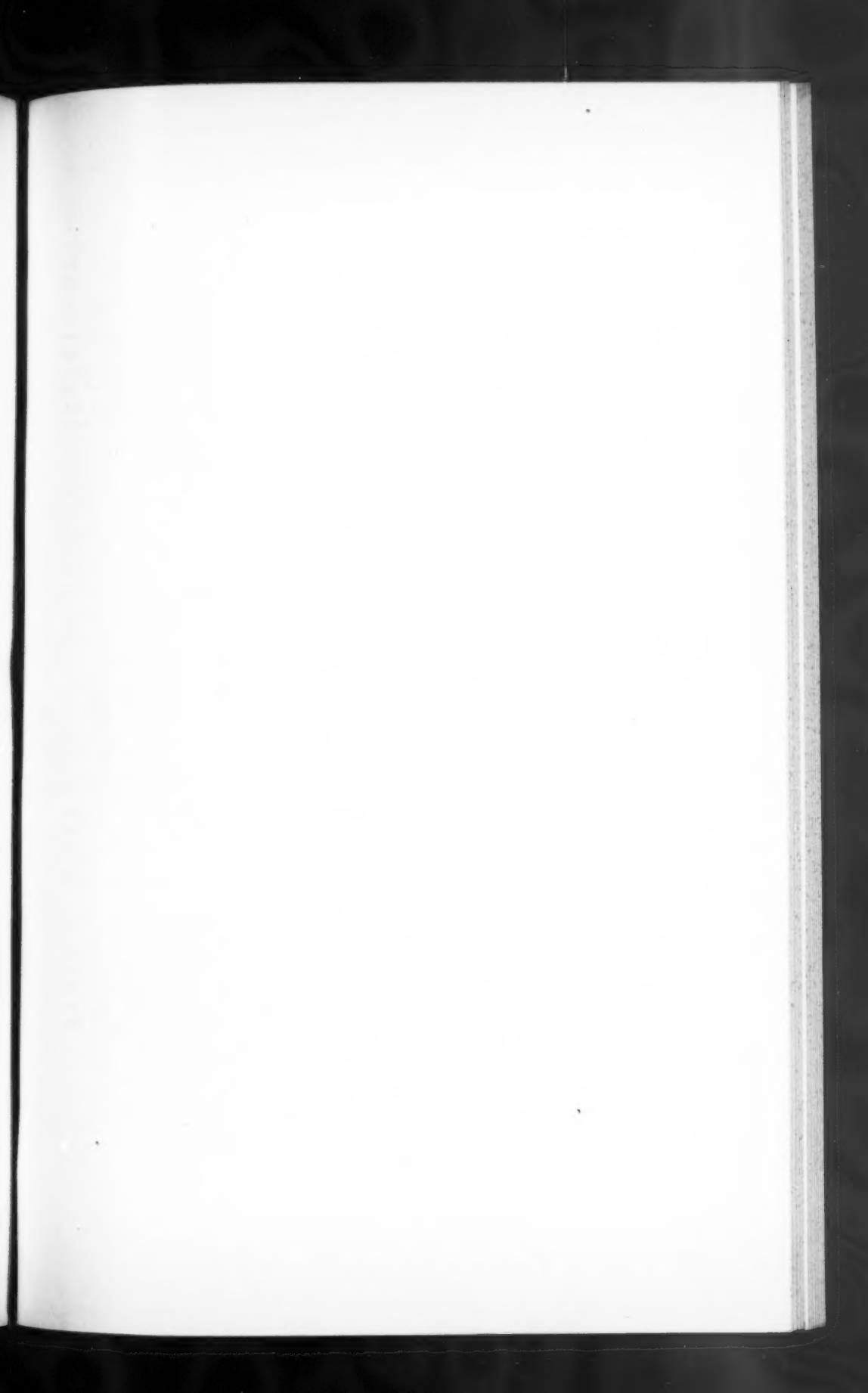
outside of their own counties. Of course, Bernarr Macfadden is a scientist (?) of national reputation, and one of their chief proponents is "Dr." F. C. Millard, an *osteopath* who may be famous among his co-cultists. They glibly use the names of various alleged medical men in France, whose standing we are, of course, unable to investigate to any extent. They also take in vain the names of such men as Rosenau, McCoy and others who are recognized as leaders of scientific thought, garbling and distorting their statements, in spite of their protests.

On the other hand, the American Association for Medical Progress, a group of intelligent laymen who have organized to combat this pernicious propaganda, numbers among its willing supporters such men as the late Dr. Charles W. Eliot, General M. W. Ireland, Cardinal Wm. O'Connell, Bishop C. H. Brent, Ernest Thompson Seton, Col. D. S. White, Chief Veterinarian of the A. E. F., the presidents of many universities and others whose names are household words.

And, finally, a word of wisdom from one of the most remarkable of living women, who is among the ardent defenders of the rights and privileges of animals and considers cruelty as being one of the three cardinal sins—Dr. Annie Besant, international president of the Theosophical Society. When asked what course should be pursued if an animal menaced the lives of human beings she answered that, if the animal could not be driven away, it should be destroyed, because human lives are more important than are those of the lower orders of creation.

Ask the antivivisectionist one question, "Is the life of a dog or a white rat (or of *many* of these animals) of more importance than that of your baby or your wife or lover, or of any other human being?" If he answers in the affirmative he is a case for the alienists; and if his reply is in the negative, the argument is ended.









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URETHROSCOPIC APPEARANCES  
(DR. BENNARDI'S ARTICLE)

# Leading Articles

## The Successful Treatment of Chronic Gonorrhea\*

By A. M. BENNARDI, M.D., Cleveland, Ohio

NO branch of medicine is more abused, from the standpoint of treatment, than is the management of venereal diseases. Any physician having special knowledge in this line will unhesitatingly agree with this assertion. An experience of over ten years devoted to the study of gonorrhea has convinced me of the absolute efficiency of certain remedies, and of their superiority over others that, fortunately, have been discarded. Historical data and a complete clinical description of the disease would be out of place here, since the purpose of this paper is merely to state a few solid, practical facts.

This disease is as old as mankind, and will undoubtedly continue to claim its victims so long as the human race continues. Reformers, pulpitists, soothsayers, etc., have had their chance since the inception of their various systems, only to be disappointed. Clean, truthful medical education as a preventative, and proper intelligent treatment, when a case presents itself, will go far to stem the tide of suffering.

Unfortunately, medical schools offer a very short and incomplete course in this specialty, with the result that the average doctor, after graduating, goes forth from medical college with hazy and indefinite ideas concerning one of the most important of human affections. No wonder the patient loses confidence and goes from one doctor to another, and often lands in a so-called "free" clinic, only to remain worse than ever.

That the free (?) clinic is a bane and an unfair competition to the profession and the most productive factor of uncured cases in this particular specialty, can best be proved by consulting patients who have visited such clinics for months, and sometimes for a year or more, paying one dollar a visit, three times a week, and extra for various drugs.

The aim of such institutions is a wholesale business, pure and simple. The more patients—I should say "victims"—the better. Regardless of whether they are pikers, bargain hunters, or well-meaning individuals, they are received with open arms.

Be it understood that no two cases of gonorrhea are identically the same, hence the inefficiency of the routine treatment practiced in such clinics. The situation is a deplorable one and needs a thorough housecleaning. Gonorrhea is a serious disease and calls for no jocular comment. Governments everywhere are interested in subduing this prevalent infection. It has been said that disease of the genital tract will destroy the manhood of a nation quicker than all the shot and shell of war. It is pitiful, therefore, to see a vast army, in the larger cities especially, making endless visits to the dollar emporiums.

### Drug Store Treatment

Another prolific source for the production of chronic cases is our good friend the druggist. Very often he is accused of many things of which he is not guilty; and of all professional men, he, without a doubt, has the longest hours and is the least remunerated, and for this reason he always deserves our sympathy. But for one thing he will have to answer, and that is, for undertaking to treat venereal diseases.

I have made a special study of their *modus operandi*. On most of the "sure cures" that are sold, the clerk is given to understand that he can, with propriety, pocket at least 30 percent of the price for selling the outfit.

A favorite package contains: a four-ounce bottle of an iodine preparation, a urethral syringe and capsule composed of copaiba, oil of sandalwood and cubeb. Another favorite "specific", exclusively used by another local firm with a chain of stores, consist of a four-ounce bottle of acriflavine,

\*From the Urologic Department of Glenville Hospital.

1:8000, a urethral syringe and a capsule much the same as the other.

Albert Neisser himself would not deliver his advice with such absolute and positive assurance. They assume an attitude as if they were the greatest specialists in this particular line. The end results of their ignorant treatment can well be imagined.

What are we going to do about it? Let every state legislature pass a bill making the treatment of venereal diseases by others than medical men, a felony, punishable by a very heavy fine, and by imprisonment. The enforcement of such a law would soon cool off the parasitic money grabbers. We would then urge our good and wise judges to show no mercy to such offenders, be they druggists, voodooists, sanipractors, or whatever.

The time has come when scientific truth should cease to be the property of the few. If we are to be honest and sincere with ourselves and with the unsuspecting public, let us cast aside the cloak of hypocrisy and assume a kind and magnanimous feeling for such patients at all times. Their future happiness depends upon the successful or unsuccessful management of the trouble. It is a moral duty that every physician owes to his country and to posterity to see that such cases receive proper attention.

#### Chronic Gonorrhea

To treat so-called "chronic gonorrhea" successfully we must first locate the trouble; when this is done the rest is comparatively easy, but this entails special equipment, time, tact and knowledge.

In the past, "gleet", as the disease is generally called, induced many medical men to pronounce the condition incurable. Attempts to ascertain the cause of its chronic nature were not made. Thus the celebrated Ricord used to say, "If I should go to hell I know what I'll be in for: I will find myself surrounded by patients suffering from gonorrhea, who incessantly implore me to cure them." This statement corresponded to the facts thirty years ago, but today it is no longer justified. The

methods of treatment have been vastly improved and if utilized intelligently, happy results will follow.

The most prolific causes of a persistent urethral discharge commonly known as "gleet" are: Stricture in any part of the canal, ulcerations, granulations, infection of one or more glands along the anterior canal, involvement of the prostate gland and of the seminal vesicles, all of which respond admirably if the proper treatment is instituted. Tuberculosis, gout, congenital narrowing of the canal, intra-urethral chancre, warts, polypi, encysted stone and foreign bodies are also factors that produce a chronic urethral discharge.

Broadly speaking, the following plan should be adopted for the treatment of chronic urethritis:

*Urethrovessical Irrigation* with potassium permanganate, oxycyanide of mercury or zinc permanganate, with a two-way nozzle, strength 1:10,000, is efficient. When clarity of urine is obtained, a methodical exploration of the urethra becomes indicated, with the purpose of locating the diseased areas.

*Massage of the Prostate Gland and Seminal Vesicles* should be practiced. These structures are usually inflamed and, once the symptomatology points to such disturbances, massage of both should be carefully carried out until pain and tenderness subside, and nothing abnormal can be found, microscopically.

*Dilatation*, I would say, is the most salutary measure that we have at our command for treating a chronically diseased urethra. The anteroposterior, four-bladed instrument is usually employed. Preliminary anesthesia with a 2-percent anesthesin solution is permissible. The chief object of this procedure is to render not only the superficial parts of the mucous membrane supple but the deeper layer as well.

*Urethrosopic Treatment* is reserved for cases that do not respond after the approved treatment. Copper lactate, 5 percent; zinc sulphate, 2 to 5 percent; silver nitrate, 2 to 25 percent; phenol, 2 to 10 percent are usually employed.



Fig. 1. Kollman Dilator.\*

*Deep Instillations* are adjuvants and of distinct value when properly used. The most efficacious solutions are silver nitrate,  $\frac{1}{4}$  to 2 percent; zinc sulphate, 1 to 5 percent; thalline sulphate, 2 to 5 percent; argyn, 15 percent. Solutions should be freshly made every four days—a very important point to remember.

#### Urethral Strictures

Sounds, *per se*, do not remedy the intra- or para-mural changes, once fibrosis has set in. If we recall the physical properties of a scar, urethral or otherwise, we can at once appreciate the uselessness of the periodic introduction of solid metal instruments. Even the dilator is of no value in a certain class of cases. Surgical treatment and immediate dilatation with a good Kollmann dilator (Fig. 1) is imperative for this common condition.

I was prompted to institute this postoperative procedure for the following reason: In doing an internal urethrotomy with an Otis urethrotome (Fig. 2), the dilatation is concentrated, so to speak, on the floor and roof of the urethra only, before or after the operation. This can easily be appreciated if one stops to think for a moment. Therefore, the rationale of dynamic uniformity in a sclerosed urethra becomes apparent. The ultimate aim is to convert the contracting stricture or strictures into a noncontracting, dead scar. Proper lateral stretching is a very important maneuver, in doing this particular kind of surgery, but one must not become too enthusiastic, for excessive stretching will invite infiltration, possible extravasation and sepsis, sequelae of no little consequence to our sincere patients.

Application of heat to the urethral mucous membrane, ionization, negative and positive galvanism, urethral suppositories, and the insufflation of various antiseptic powders and vapors into the urethra I have found of little or no value.

To repeat again, *find out the cause of the condition*; and this cannot be done by mere inspection or by surmising. A five- or ten-minute examination will not enable any of us to write an intelligent commentary on the individual's condition. Use all instruments gently. Acquire and beget a temperance that may give your technic smoothness. This being done, we will escape the obloquy of being capable of nothing, urologically at least, but inexplicable dumb show and noise.

1.—My own technic.



Fig. 2. Otis' Urethrotome.\*

In conclusion, let us bear in mind that skill in any art is a product of the hard knocks of experience. Let every physician doing this kind of work place himself in the position of the patient whose life, health or happiness is at stake, then probe his sensitive subconscious mind and see if he also does not feel that the patient has a perfect right to receive competent treatment, be it medical or surgical. (See colored insert.)

I append 6 plates, illustrating the urethroscopic appearances of the most common pathologic findings in chronic disease of the urethra.

\*Kny-Scherer cuts.

PLATE 1.—INFECTED GLANDS OF LITRE—Endoscopic treatment and dilatation usually give excellent results.

PLATE 2.—URETHRAL STRICTURE—Plastic changes can easily be seen invading the urethral wall. Mucous membrane is replaced by scar tissue. Surgical treatment and proper after care is the logical routine for such cases.

PLATE 3.—LARGE ENCYSTED GLAND OF LITRE—A few dilatations and urethral irrigations invariably correct the trouble.

PLATE 4.—SOFT INFILTRATION, GENERALLY SEEN IN THE BULBOUS PORTION OF URETHRA—Endoscopic treatment and the dynamic action of a dilator is the method of choice in such cases.

PLATE 5.—CHRONIC INFLAMMATION OF LACUNAE OF MORGAGNI AND OF LITRE'S GLANDS—Far-pushed dilation and direct urethroscopic medication give the desired results.

PLATE 6.—URETHRA IN A STATE OF ACUTE INFLAMMATION. (The Typical Picture in Acute Gonorrheal Infection.) The Mucous Membrane is Extremely Sensitive, Swollen and Oozes Freely—Local gentleness and mild antiseptic solutions should be a hard and fast rule in cases of this type. Enthusiasm on the part of the attending surgeon, at this stage, usually interferes with the expected *restitutio in integrum*.

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## Rational Eating

By W. V. GAGE, M.D., Denver, Colo.

"Education as a gospel.

"Education as a goad.

"I cast my vote for education as a goad, for the simple and obvious reason that the adventure of thinking to which we owe everything we cherish, would stop under a system of education that was nothing save a marketing of established opinions.—Glenn Frank."

THIS article has to do with a topic which, within the next ten years, will, I believe, come to be looked upon as the most important single factor having to do with the welfare and progress of the race. I refer to food and its relation to health and its maintenance; and to disease and its possible modification.

One of the things which, possibly, can never be explained is the fact that although, during the past fifty years, astounding progress has been made in all other branches of medical science, we seem to have overlooked, until very recently, the most obvious item in the production of body normality; i.e., the perfect body chemistry, and consequent freedom from disease states that must, of necessity, follow a proper intake of a proper amount of proper food. We seem also to have overlooked the equally inevitable departure from health and the establishment of dysfunction that must result when the body is required to assimilate and faultily metabolize food which is neither physiologically nor chemically fitted for tissue building and the replacing of used cells.

I believe that a "common cold" is an absolutely preventable condition; and I also believe that the "cold" is a transmissible

malady, due to germ invasion; but I feel sure that neither the "cold" germ nor any other form of bacterial life can flourish in the tissues of a host, unless these tissues have previously been rendered good culture soils for the reception, maintenance, fertilization and growth of the germ in question.

It is becoming more and more obvious to me as the years go by that all other departures from normal, whether they show symptoms which may be traced to the invasion and growth of a specific bacterium, or manifest discrepancies due solely to faulty body chemistry, have as a starting point, poorly or faultily functioning tissues. These crippled tissues or glands, rendered inefficient by a faulty food supply, are consequently delivering abnormal products and producing faulty action upon the part of dependent tissues and glands. These sick tissues easily break under strain, as does any other poorly-made product of any kind.

Almost any make of automobile will function more perfectly when employing good gas. Is it not logical to believe that the body and all its parts will show more nearly the normal function when the most appropriate food, or fuel, is offered it for combustion? And is it not more logical, with the car, to employ the very best petrol obtainable, rather than to depend upon an indefinite quantity of "any old kind of gas" and afterwards, when the motor gets "sick", to add to the poor gas, tablets of various kinds, to "help out" the inferior fuel?



During ten years of experimental work, in my own case, I have demonstrated to my own satisfaction that the disease state known as asthma is perfectly under the control of its anaphylactic victim; and these ten years of observation have also compelled me to consider the relation which food—good and bad, appropriate and inappropriate—bears to all disease states. I have reached the point where I believe that most departures from normal are strictly the fault of the diseased individual himself (ignorance of the law not considered), and that his return to normal is as much within his own hands as was his deviation from the path of the law, with its consequent penalty. He is sick because he has ignored or flouted Nature's granite-founded laws, and he again becomes well when he is willing to acquiesce to and cooperate with them.

Perhaps one of the factors that has most hindered progress along the lines of observing and cataloguing the various foods and their influences as disease producers and health maintainers, has been the tendency, which readers of medical articles all deplore, on the part of the architects of certain papers to depend, for the major portion of their articles, not upon what they have themselves observed, but to lift bodily a word or sentence or paragraph or page from the pen of some previous writer, who has also quoted from the quotation of a quoter, who quoted from a quoter who was quoting. Thus misstatements and fallacies stagger on and on, unchallenged, and are over and over again accepted by the best of us; and the intrepid writer who dares to challenge the error has not only the fallacy itself to fight, but also a host of well-meaning, enthusiastic and conscientious champions of the shopworn error.

#### Cow's Milk as a Human Food

Where is there a community nurse who will not receive the support and commendation of all members of the local medical profession when she instructs the mother or the teacher to "give so many pints or ounces or quarts of cow's milk per day, per child", to all undernourished children, regardless of heredity or anaphylaxis or distaste or abhorrence upon the part of a considerable percentage of the children who are asked to assimilate the milk.

This system of *wholesaling* an idea is wrong, in spite of the fact that the plan is universally accepted and commended. It is wrong because of the fact that there are

so many children who are anaphylactic to cow's milk and who cannot possibly even *try* to metabolize it, except to their detriment.

Of course, the physician who dares to stand out against this universally accepted idea, or even intimate that it can possibly be wrong, is anathema, but the facts, as our friend Copernicus once said, remain facts, just the same.

Cow's milk has long been lauded as the "natural food for human beings". Will some one kindly answer why?

Suppose that, in the great scheme of things, hippopotami had been selected for domestication. Would hippopotamus' milk now be the "natural" food? And cow's milk unfit for ordinary consumption?

Cow's milk is manufactured for the baby of a cow and is acknowledged by all to need a considerable amount of modification before it is acceptable to the average human baby. This being so, who is going to determine the age of a child who can take cow's milk, if he has previously been poisoned by it?

I believe in the giving of cow's milk in selected cases, as it is the supreme food in many instances; but it is a detrimental item in others and this fact must be recognized before milk is classified as an invariably beneficial therapeutic agent and utilized as such.

Tympanites is one of the classical textbook symptoms of typhoid. It has no reason or right to be classed as a typical symptom, inasmuch as it is usually "man made", always from overfeeding and usually from overfeeding with milk. How can anything else than tympanites, distress and dilirium follow the continued administration of an overplus of food, "to keep up the strength"?

As a concomitant of this typhoid state a congested, engorged faultily-functioning intestinal mucous membrane, dotted with inflamed Pyer's patches, is asked, hourly or oftener, to perform prodigies of digestive valor which would compel the intestinal canal of an athlete to surrender and acknowledge defeat. So many pints of milk per hour, for the average typhoid patient and, when the belly gets good and tight, because of a crippled intestine and too much milk, the instructions say further to take a sample of the stool to the laboratory and cultivate its bacteria in litmus milk.

#### The Tonsils

Lloyd George has said that to get a change in the kind of trouble was like taking a vacation. Let us forget milk for a while and

consider the tonsil, normal and abnormal, and its possible relation to an abnormal food supply.

I think that most of us can easily visualize the tonsil as one of the large lymphatic filters of the body—a filter constructed to stand between the human economy and outside infection, either directly or through the blood stream. I think, further, that most of us are willing to agree that the Creator of all things allowed few of them to pass from His hands in such a condition that man need “fix” them.

When, under the influence of the products of previous faulty body chemistry, due to improper exhibition of inefficient or excessive fuel supply (probably an excess of the acid-making carbohydrates), the tonsil at last begins to surrender, after it has tried the expedient of hypertrophy, as an aid to increasing its function, we, as advising physicians, recommend that the valiant tonsil, “fighting with its back to the wall”, be removed.

Would it not be at least as logical for us to come to the conclusion that this pathologic hypertrophy was the result of a causative factor, and try to locate and remove this factor, before deciding finally to sacrifice the tonsil which had been, and still was ready, with a little help, to do its normal best?

Why would it not be wise to consider that the inflamed tonsil had simply been trying to function as a red flag of danger, to warn us of previous faulty metabolism? And would we not be serving our patients more fairly to tell them that the tonsil did not enlarge without cause and that it would undoubtedly go back again to normal, provided the cause of its abnormality were removed?

The child or adult who shows a hypertrophied tonsil has been doing, dietetically, what he should not have done and, in cases where you are sure that you are getting the intelligent cooperation of your patient, you will be more than pleased and satisfied, as your patient surely will, if he can be induced to “carry on” for a month or six weeks on a diet containing a minimum of the carbohydrates and possessing only sufficient bulk to satisfy the actual needs of the body.

#### Food and Health Conservation

The time is fast coming (and we had better prepare for it, as the laity is already beginning to expect it) when it is going to

be the function of the physician to assume the office of advisor to his clientele, regarding how to live so that they may not be sick, rather than, as at present, to seek the discovery of a remedy for a diseased state that, primarily, need not have existed at all.

The people who believe in us so fully must be properly instructed in ways of life which prohibit the establishment of diseased states. We should teach that it is better not to do things which cause diseased states than to disobey the law and then, when the day of punishment arrives, as it inevitably must, to depend upon a remedy to bring us back to normal.

In a few years it is going to be considered as disgraceful to exhibit a “common cold” as it now is to be vermin infested, because the “cold” simply furnishes evidence that the individual has been neglecting his body. He has either eaten gluttonously or eaten the wrong foods or has not taken a sufficient amount of exercise or his bathing has been neglected.

We are too much inclined, as physicians, to recommend a “light diet” in most of our cases and let it go at that, with little attempt toward selecting items which are especially suited, chemically, for the betterment of a given condition. What in the world is a “light diet”? In the mind of the average nurse it means cereals and milk and sugar and toast and tea—and this, especially, in the diet of the aged.

Certainly, in the therapeutic handling of the average case, the physician is consciously, or unconsciously, trying to establish an alkaline reaction in the body, as he knows that the average healthily functioning living cell is an alkaline cell; while the nearer the cell approaches acidity, the nearer it approaches death. This being the case, how illogical it is, in selecting a “light diet”, to give starch and sugar and tea which are, at times, more likely to maintain the acid state than are many proteins. Even in an arthritic condition, the patient might do better on straight lean meat than upon an overplus of the carbohydrates.

The Smith-Hughes men, who are being sent out by our universities and who have to do with animal husbandry, are years ahead of us. If they want to produce weight or speed or strength or wool or milk, they feed for that item, in a given animal, and get the expected results. We had best watch these men and their work and results, and more or less adopt and apply procedures which parallel theirs.

When, by observation and study, we have come to a conclusion as to the proper diet for a certain patient, either sick or well, we should then be on our guard in regard to the bulk of food allowed, as too great an amount of foods which are chemically perfect will as surely stand in the way of success as will poorly chosen dietary items. The average physician, because he is an over-eater himself, and because he has really given very little earnest attention to this matter, is in a poor position to decide what a normal and proper amount of food really is, for either the sick or the well, and he usually decides in favor of an overplus.

### Eating and Exercise

Normal eating and adequate exercise are the very foundation stones of the far-off millennial civilization that must eventually come but which, to date, gives few evidences of having started to arrive.

If you will leave your car behind for once and go out and take a five-mile walk, carrying with you your "diagnostic eye" and carefully scrutinizing all the folks you pass, you will be astounded to note how we, as a race, are deteriorating in the matter of physical perfection.

I know full well that our boys and girls are, in a small percent, playing basket-ball and foot-ball, spasmodically, in our schools and universities. I also know that an attempt to keep up this training is seldom carried out by the graduate. *Exercise is a life work.* With this short training in athletics in our schools, there has been little attempt to get the student to take from school with him a proper knowledge as to how to eat. *This is a crime.*

Before you criticize these statements too harshly, consider a few of the things which you, a physician, have allowed yourself to do, which were detrimental to your own physical and mental welfare. We will not count tobacco nor alcohol, because perhaps neither of these, in most cases and when properly handled, is a great menace to health, but let us consider a few other points.

*First.*—Have you exercised, today, up to the point of perspiring freely, and did you follow the exercise with a quick bath? If not (I now refer to the exercise), how long has it been since you have done so?

*Second.*—How many times have you over-eaten today? How many meals have been excessive, up to the point of painful and distressing discomfort?

*Third.*—How long has it been since you have experienced the wonderful physical and mental exhilaration which goes with and follows a five-mile daily walk?

*Fourth.*—Do you believe that you are obeying the laws relative to diet and exercise and getting the sure reward that is *forced upon* the respecters of the law?

A thousand cattle of a given breed and age do not vary, markedly, one from the other; but imagine, if you can, the inequality shown by a thousand nude human beings forty years of age. There will be shown, assuredly, almost a thousand different physical results, because of the varied life habits of the humiliated and abnormal specimens exhibited.

Until the arrival of that Utopian period when illness shall be no more because of proper habits of life, what had we best do in the handling of our clients, both sick and well?

First, we should always carry in mind the thought that simplicity and moderation are the keystones of success, and that the meal made up of the fewest items is probably the safest and sanest.

At present I have no system of food evaluation to take the place of the battle-scarred old calorie, however inadequate it is as a real index, but I feel that we should rather ignore this veteran, and give the major portion of our attention to the vitamins and the delicate chemical combinations that can be built up in the green and growing living thing, but cannot be even approximately duplicated in the laboratory.

Let us start with the premise that almost everyone, ourselves included, is overeating, and with this fact in mind, let us inaugurate the handling of the average case by telling our patient that he is eating too much. We will not be mistaken once in a hundred times. We should, therefore, first reduce the bulk of the food intake.

Next, we should take into consideration the fact that many people are anaphylactic to one or more dietary items and we should skin-test our patients with various allergens until (and this is especially true in cases like asthma) we have determined and removed the guilty food substances.

### Food Allergy and Vitamines

We will find that among the foods which produce skin reactions are many of the more common, innocent and unsuspected food products, such as wheat, corn, oats, white potato, beans, milk, eggs, celery, radishes, strawberries, lettuce, bananas and nuts. The

list of trouble makers that can stand between us and success is almost without limit.

When we have determined and removed the offending foods we will find that asthma, migraine, various digestive disturbances, cardiorenal states, constipation, chronic and acute eczemas and "cartarrhal conditions" of the mucous membranes generally, usually surrender very quickly to nothing more therapeutically formidable than the establishment of a food intake suitable to the condition in question. These results may be obtained by anyone who is willing to give his patient the time and attention to which every patient is entitled.

Most of us are eating too freely of the carbohydrates and are neglecting the fruit and vegetable and salad end of the dietary. Every meal of the day probably carries too much starch and too little fruit and vegetables. Treat starches and sugars with respect and do not depend upon them as staunch friends.

Meat foods, the proteins, have come to be looked upon as things to be excluded from the general run of "diets" when, contrary to the general belief, it can be clinically shown that they are at times more easily handled in the body's laboratory than are many of the starches.

While speaking of starch, let me refer to the wonderful thing that was done when it was found that "polished rice" was the cause of beri-beri, and also call attention to the lesson that we might have but did not learn.

A much more universally used grain—wheat—is today being "polished", all over the world, before it can be made into a saleable and commercially profitable flour. We must stop the "polishing" of wheat. It seems never to have occurred to anyone that this vitamine- and salt-rubbing process, called "polishing", that was applied to rice, rendering it insufficient as a food and a menace to health, is now applied to wheat in order that a beautifully white and comparatively worthless but saleable flour may be produced. It is our duty to popularize whole wheat and to banish "polished wheat" products to the limbo now tenanted by "polished" rice.

In closing, I wish to state that I believe in drugs and give them, as emergency measures. I believe that the oft-proved efficacy of diphtheria antitoxin, typhoid vaccine and many of the other vaccines leave no chance for argument as to the results obtained. I believe that a beautifully applied splint, in the hands of a competent surgeon, is certainly going to be of greater value in a broken leg than spinach, either locally or internally.

In other words, I am trying not to wax too enthusiastic or fanatical. But I do believe that normal food, combined with exercise, is the most important single item in the prevention of abnormal bodily states and is an aid in returning a pathologic to a normal function.

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## Good Nature and Good Health

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IT has long been recognized that various emotions are accompanied by special facial expressions. Thus joy has one kind of expression; anger another. In recent years it has been found that emotions modify the chemistry of the human body; that certain kinds of feeling, especially the happy kind, help the proper functioning of the organs, while others have an unfavorable action. The relation of some of our feelings to the chemistry of our bodies and to health is the subject of this little discourse.

Though life may lie dormant, in seeds, for example, for a long period, life in general, means activity and activity means work or a transfer of energy. The energy or power we use for our activities comes from the food we eat. To be of use to us the food

must be digested and the object of digestion is, first, to convert the food into simpler material which our system uses as building stones to make up the kind of material we are made of; second, to make these simpler chemical substances soluble and easy of assimilation or taking into our blood and tissues.

Living as we do, on the whole, on diets containing meat, milk, eggs, cereals, vegetables, fruits and greens, we are getting sufficient protein or tissue building material; sufficient carbohydrates, such as starches and sugars, for energy; sufficient fats, mineral matter, vitamins, and water to enable the body to work and to keep up its power to offset injurious agencies coming from outside or formed within itself by bacteria in the intestines or in other places.



Variety is said to be the spice of life. For the best working of the human system, the variety in diet I have mentioned is advantageous, since but few foods carry all the ingredients the body needs. By variety, foodstuffs fit in together and one kind of food supplies what the other lacks so that, taken as a whole, on such a diet we have no need to fear lack of proper building material, lack of mineral matter, or lack of vitamins.

With a limited diet there is danger of more or less lack of proper building material and lack of proper mineral balance and vitamins. These dangers of a deficient diet, with a resulting decrease of vitality, imperfect nutrition, and even definite disease conditions, is especially marked when the diet is made up mainly of what is known as highly milled cereals such as soda biscuits or white bread, made without milk and yeast, white rice, etc.; but these articles of diet are efficiently utilized by our bodies if mingled with foodstuffs such as meat, milk, greens and fruits which supply their deficiencies.

The meat, milk and eggs supply primarily the building material for our tissues and in addition the mother substance from which certain glands make specific constituents for controlling and regulating the activities of the body. The cereals, in addition to giving some tissue building material, supply directly or after digestion simple sugars which are utilized for quick energy. The fruits and greens are useful in supplying various necessary vitamins and mineral matter and in aiding the excretion of waste. Water in our diet is useful in stimulating and aiding digestion, in promoting the absorption of the digested foods, in carrying off waste products through the kidneys and in facilitating the excretion of intestinal waste.

Proper elimination of waste is necessary for health, for with slow passage of waste along the intestines, bacteria become over active. When these bacteria are of the putrefactive type they do a two-fold injury: First, they rob the system of some of the building-stone material; and secondly, they form substances which, when absorbed, act injuriously on the organs and nervous system. As we grow older the danger from slow excretion grows greater but this tendency can be counteracted by attention to the diet and by taking exercises which stimulate the activities of the muscles aiding excretion. In passing, it may be said that

much of the impaired vitality and lessened resistance to disease is tied up with the sluggish elimination of waste.

Given a fair chance, the human system digests the food, assimilates the digested products and rearranges the absorbed material with a precise and admirable harmony in which the various organs and cells interplay. This harmony begins even at the sight of food and, with pleasant surroundings, continues until the food is utilized for any activity we desire. A proof that the body starts its harmonious activity even at the sight of food is known to every one. Thus, the mouth waters at the sight of certain foods. This watering of the mouth is but a preparatory stage in digestion comparable to what occurs when you take food.

As a result of the sight, smell, taste and feel of food in the mouth a message is sent to the stomach and the flow of digestive fluids is started so that a supply of gastric juice is at hand in the stomach waiting for the incoming food. Thus digestive processes are enabled to go on without delay. In a like way, just as soon as partially digested food begins to leave the stomach and empty into the intestines, a chemical messenger is sent to all the glands taking part in intestinal digestion and a steady flow of intestinal digestive juice is ready for the oncoming food. In digestion of food in the intestines, the most important digestion in the body since the intestines can digest all kinds of foodstuffs, there is a beautiful interplay of various juices and chemical digesting agents.

Now all these closely coordinated and nicely balanced reactions of digestion go on better in happy surroundings than in unhappy ones. Surface effects of excitement are well known. The contraction of blood vessels, with resulting paleness of the face; the stopping of the flow of saliva with resulting dry mouth and tongue; the rising of hairs; the rapid beating of the heart; the quickened respiration; the trembling and twitching of the lips, are bodily changes which you have all seen in excitement, especially in fear, horror and pain. Not only are external organs affected by excitement but the deep ones are included as well.

Studies of man and animals have shown that the conditions favorable to proper digestion are upset when unpleasant feelings such as vexation, worry and anxiety or emotions such as anger and fear are allowed to prevail. By strong excitement, particularly of the unpleasant kind, the



glands of the mouth, the stomach, the intestines and the flow of bile may be checked for some time. In such conditions the food lying undigested in the stomach is an irritant rather than a benefit. The moral is, if we have experienced an outburst of passion or strong excitement, it is well not to take nourishment until we are calmed down and are willing to look at things good naturedly or with a courageous poise. This applies to man, woman and child. If the rule were applied there would be fewer cases of "nervous dyspepsia", or better, *emotional dyspepsia*.

Through what organs does emotion act? Is it through direct action on nerves controlling the organs of digestion? Apparently not. The action of emotion seems to be largely through the glands of internal secretion. It is considered now that possibly all the organs and tissues pass chemical messengers into the blood to aid neighboring and far distant tissues to meet the battle of life. Be that as it may, the fact is that the recognized organs of internal secretion play a large part in rearranging and regulating the chemical changes in the body.

The story of the ductless glands and their relation to our activities, personalities, etc. is an interesting one but is, in the main, aside from our present discussion. Upon the activity of one set of these glands, however, we must dwell since a great deal of work has been done to show that they are active in our defense, and are active in emotional states. These glands are the adrenals from the central portion of which epinephrin or adrenalin is extracted.

If epinephrin is injected into the blood, it will cause the pupils of the eyes to dilate, hairs to stand erect, blood vessels to be constricted, the activities of the alimentary canal to be stopped and sugar to be liberated by the liver.

How is epinephrin related to emotion? This can be answered by saying that it has been shown that the secretion of the adrenal glands is increased in great emotion; that pain excites these glands to pour into the blood stream an increased amount of epinephrin; and that fear and rage do the same thing. This calls forth stored carbohydrate from the liver and floods the blood with

sugar which can be used for quick energy; it helps in distributing the blood to the heart, lungs, central nervous system, and limbs while taking it away from the organs of digestion; and it quickly abolishes the effect of muscular fatigue and makes the blood more rapidly coagulable—in short it prepares for "fight or flight", such as may be necessary in times of danger, fear, rage or pain.

I believe I have said enough to show that feeling has a great effect on our physical state—on the chemistry of the body. The lesson we can draw is that, in digesting, assimilating and rearranging the ingredients of our diet, the body works with a precise and admirable harmony in which all the organs and cells interplay. Good nature, especially at meal time and just preceding it, or, better than good nature, a cheerful courageous poise, gives digestion and assimilation a boost and allows the inner harmony of the system to go on sweetly and efficiently. By good nature I do not mean the kind of amiability that invites crude, elemental persons to walk on you, but rather the optimism that is ready for the battle, with kindness in the heart and malice toward none.

On the contrary, starting the day or the meal with cross, fretful, angry feelings tends to check digestion, in the ordinary individual, and to throw a greater stress on the inner harmony than is compatible with success in our customary vocations.

Of course, there are people who are happy while "riling" others, and some who especially enjoy a fight, either real or shadow boxing. Such people we may have to exempt from the rule. But, as a rule, strong emotions of fear, anger, or peevishness at meal time will retard digestion in the individual showing the emotion, causing an increased tendency to sluggish elimination and poison production. Such an individual *may* live as long as the one with a cheerful nature, but he will not live so well nor, indeed, will those in contact with him gather the great fruits of the joy of living.

Chemical states and emotions are tied together. Let us have them at their best, for our pleasure, for the pleasure of our friends and for the greater joy of living all around.

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# What the Well Dressed Rectal Case Will Wear

By J. F. MONTAGUE, M.D., F.A.C.S., New York, N. Y.

Rectal Clinic, Bellevue Hospital Medical College Clinic.

THE dressing of rectal cases is quite as important a factor in their care as is the actual operation itself. Indeed, it is the careful dressing of operative rectal wounds which is responsible, to the greatest extent, for success in the surgical treatment of rectal conditions. Whereas, however, the operation is a matter of but a few minutes' attention under the most advantageous circumstances, the dressings of the wound are done, in the majority of cases, under conditions which call for much diplomatic manipulative skill. The difference in situations is chiefly for the reason that the patient is conscious. Hence he is actively alert to all sensations and is particularly sensitive to pain.

In addition to the handicaps to treatment imposed by the aforementioned nervous reaction of the patient, there is another which is quite as needful of consideration. In almost any other part of the body a wound can, with a certain amount of care, be kept reasonably clean. Rectal wounds on the other hand, are subject to constant soiling. The perfectly necessary matter of a daily bowel movement carries with it the likelihood of depositing in the recesses of the wound foreign material of a potentially infective nature. Suturing the wound, as is practiced by surgeons who know but little concerning the special demands for success in rectal surgery, in no way mitigates this danger. On the contrary, it favors infection by interfering with the drainage of whatever infective material seeps through the interstices of the sutured wound. Suppuration is the inevitable result and abscess formation, of which subsequent fistula will surely be a sequel if the sutures are not promptly removed.

One other factor which must be reckoned with in the care of anorectal wounds is sphincteric action. This muscle, the sphincter ani, is composed of smooth fibers and like all other muscle of this type, is constantly undergoing involuntary, rhythmic contraction and relaxation. This constant motility of the parts seriously interferes with one of the essential requirements for rapid and accurate repair; namely, rest of the part affected. As to how sphincteric action may be best dealt with is explained in some of the following paragraphs. Briefly,

by avoiding traumatism of the sphincter at the time of operation, by minimizing infection of the wound and, finally, by the employment of the position of maximum comfort in rectal disease we may, to a large extent, avoid the unpleasant consequences of sphincter action.

The position which I have found gives maximum comfort in rectal diseases is obtainable by the following simple arrangement: The head pillow of the patient is removed; a pillow is inserted under the hips and two pillows under the legs. With the various parts of the body distributed at these levels, the patient may lie flat on the back or on the abdomen, or he may turn gently from the back to either side. A rubber air ring, semi-inflated, may be placed under the sacrum or hips for additional comfort. The rectal area is no longer in a position to be congested by gravity, nor do the pelvic viscera exert pressure on the tender part. Edema will not occur. Furthermore, flatus escapes with ease. The total result, with all these factors of local disturbance eliminated, is comfort to the patient. Aside from this, the wound heals more rapidly, and experience indicates that convalescence is shortened. (Fig. 1).

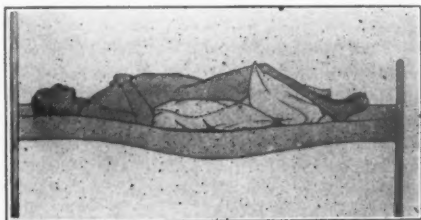


Fig. 1.—Position of maximum comfort in rectal diseases.  
Montague "Modern Treatment of Hemorrhoids."  
J. B. Lippincott Co., Phila.

The foregoing serves well to call to mind the evident, but often overlooked obstacles, to the proper treatment of rectal wounds. How then should we dress operative wounds presenting the features described? The answer will be found in the following paragraphs.

## Operative Dressing

The type of dressing employed at the time of operation will have a very considerable influence on the ease or difficulty of subse-

quent dressings. For instance, if we insist on employing that relic of the yesterday of rectal surgery, the rectal "plug" or "whistle", we not only traumatize the patient locally upon its removal but we also wound him psychologically to such an extent that he dreads every rectal dressing. If, on the other hand, we employ the small flatulence



Fig. 2.—Flatulence Catheter.  
Courtesy of C. Bard Co., New York, N. Y.

catheter shown herewith (Fig. 2) we are certain to cause no local trauma and we give our patient the pleasant surprise of having absolutely no pain when the tube is removed. This is in such direct contrast to what his friends have related of other rectal operations that his esteem for your skill is immeasurably increased. My suggestion then is to avoid overdistingending the anal orifice with plugs. For the purpose of avoiding concealment of bleeding and to permit the easy egress of gas the use of the flatulence catheter is suggested.

As an operative dressing for wounds in this region, square gauze pads are commonly employed, in conjunction with the traditional T binder. Neither of these will be found satisfactory for the purpose for which they are used. The gauze pads become matted with secretion and when this dries they are hard and uncomfortable. The use of the unfolded or stuff gauze will furnish much greater comfort to your patient. Instead, of the T binder which varies so much in size and style (every nurse has her own way of making it), the improved rectal dressing binder which I described in *J.A.M.A.* volume 87, page 30 may be used with advantage. (Fig. 3). Experience with these rectal dressing pads will bring out many points of superiority over the tantalizing T binder. Among its numerous advantages are the facts that no pins are required and that only the soiled pad need be discarded. The belt itself lasts indefinitely and hence the arrangement proves most economical. Moreover, the attaching and detaching of the pads can be done in but the fraction of a second, and once secured the pads cannot possibly slip out of place.

#### Postoperative Dressings

If the previous suggestions have been taken we will find our patient in an "una-

fraid" mood when the occasions for post-operative dressings arise. In no type of case, however, is gentleness of handling so greatly appreciated as in rectal cases, since not only the operative wound but the tissues immediately adjacent to it are quite prone to be very tender. This fact must be borne in mind whenever we have occasion to examine the operative wound or dress it. The buttocks must be retracted very gently so as not to excite sphincter spasms nor to exert any tension upon the tissues of the wound. In this connection the knee-elbow position is recommended since it allows unexcelled access to the parts and, moreover, leaves the normal relations of the parts undisturbed. No great amount of retraction is necessary in order to view the area under consideration. In these and other respects the knee-elbow posture is considerably superior to the Sims or the lithotomy positions. As an

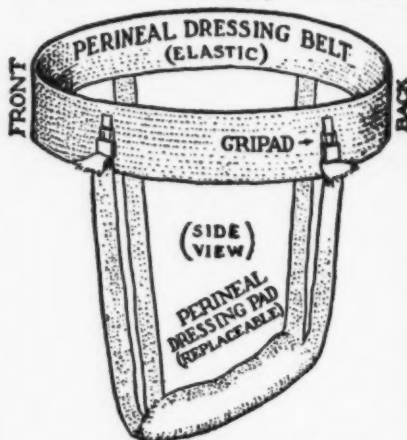


Fig. 3.—Rectal dressing pad and binder.  
Courtesy of Johnson & Johnson, New Brunswick, N. J.

accessory to the convenient use of this position the combined dressing tray and drainage basin shown herewith is suggested (Fig. 4). Its use will facilitate the dressing of rectal wounds.

Cleanliness is an almost self-evident requisite, but the daily dressing is, contrary to general opinion, not sufficient to maintain reasonable cleanliness of this area. The dressing pad must be changed at least twice daily, since secretion from the wound as well as fecal soiling is quite prone to occur and, besides serving as an incubator for bacteria, the pad gives rise to an unmistakably noticeable odor. Then, too, after an operation, there may be some difficulty in

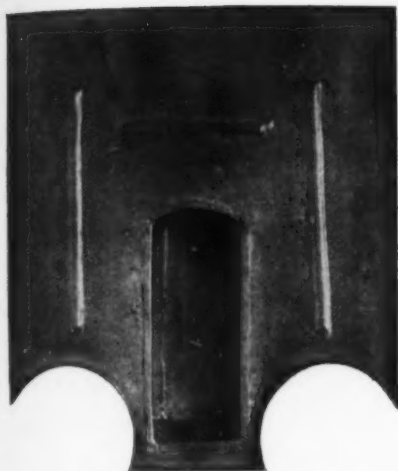


Fig. 4.—Combined dressing tray and pan.  
Courtesy of Frank S. Betz Co., Hammond, Ind.

sphincteric control or perhaps leaking of mineral oil, hence the suggestion that the dressing pad be changed at least twice daily. To facilitate deodorization, it is suggested that the dressing pads be liberally sprinkled with some deodorant dusting powder. I have found "Vemo" a deodorant powder put out by the firm of Johnson & Johnson, of New Brunswick, N. J., very efficient for this purpose. It may also be used on the perianal skin as a talcum powder.

As to the manner of caring for specific types of wounds, such as the fistula wound, the fissure wound, the hemorrhoid wound, etc., certain details should be mentioned. In the event of an open wound such as that left after doing a fistulotomy or the transcision operation for fissure, the prime essential requirement is adequate drainage. In the fistula wounds particularly, one must ever be alert to the possibility of pus pockets forming, by the bridging over of granulation tissue from one side of the wound to the other. I personally use a sterile glass rod, about  $\frac{1}{4}$  inch in diameter and with a blunt, molded tip, to explore the recesses of the wound and break down whatever bridging has accumulated since the last dressing.

One often hears of "packing a fistula" and the name "packing" is often applied to the gauze drains themselves. I think it will be agreed, upon a little reflection, that the

object in placing the gauze in these wounds is to drain the wound rather than to forcibly separate its walls. I use the smallest size of gauze drain obtainable ( $\frac{1}{4}$ " or else, in larger wounds, the special rectal fistula drains (Fig. 5) which I devised some years ago and which have met with much popular favor. These same types of dressing may be used in fissure cases. In hemorrhoid cases I employ no dressing within the rectum or anal canal but am content to apply a piece of loose fluff gauze to the perianal region and hold this in place with my rectal dressing pads.

As incidental dressing procedures, the hot sitz bath and suppositories are often called into play. I much prefer the use of the hot water bag to the sitz bath. It has been my experience that, with the use of the former, we obtain all the relaxing influence which the bath would give and at the same time avoid the modification and contamination of the wound which invariably accompanies the sitz bath when taken too early following the operation. Suppositories cause considerable traumatism in their introduction and are, in my opinion, a totally inefficient method of applying med-

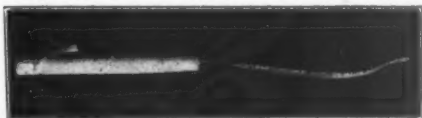


Fig. 5.—Rectal fistula drain.  
Courtesy of Johnson & Johnson, New Brunswick, N. J.

ication to this area. I prefer to employ a catheter tipped "Aseptic" syringe for the purpose of introducing ointments containing medication which I wish to apply along the walls of the anal canal. I find it a very easy and painless method of accomplishing this object.

Each of the devices and appliances which I have mentioned in this article will be found to contribute something to the art of dressing rectal cases in such a manner as to retain their friendship. There is no reason why rectal dressings should be matters of torture. It will be granted that the parts are sensitive. So much greater the need for gentleness in manipulation and good judgment in the employment of materials and methods!

30 East 40th Street,

# A Study of Goiter Classification and Nomenclature

By JAMES H. HUTTON, M.D., Chicago

FOR a long time I have felt that one of the most confusing things about the goiter problem was the terminology and classifications with which the literature is encumbered. Some of the terms mean little from a clinical or pathologic standpoint and their use does not conform to the definition given by the dictionary. For example, the term "endemic" is used in referring both to the diffuse, symmetrical, enlargements of the gland and the nodular or adenomatous enlargements, without signs of hyperthyroidism. But, according to the dictionary, it might just as well be applied to the adenoma with hyperthyroidism and to the exophthalmic goiter, as both are endemic in some localities.

Adolescent goiter is another term, the use of which does not convey the meaning Webster had in mind. The latest edition of The New International Dictionary says of adolescent, "growing, advancing from childhood to maturity", all of which might well apply to the patient but hardly to the goiter.

"Simple" is another term which is not well applied to goiter. Referring to Webster again, "simple; single, uncombined, not blended with something else", and a long list of other definitions. Many of these might easily refer to patients having goiters, but few or none of them could be well applied to goiter. As used nowadays one gathers from the context that the term "simple goiter" refers to one without signs of hyperthyroidism; but why not say so and not ask the reader to guess what might be referred to by the term?

As nearly as I can understand the meanings of the various terms appearing in the literature they might be grouped as indicated by the following table:

## Simple nontoxic:

(a) Diffuse Colloid Goiter (referred to by other terms as follows)

- |  |        |
|--|--------|
| 1. Simple  | goiter |
| 2. Endemic   | "      |
| 3. Adolescent                                      | "      |
| 4. Adolescent vascular                             | "      |
| 5. Adolescent colloid                              | "      |
| 6. Nontoxic  | "      |
| 7. Goiter with apparent normal secretory activity. |        |

(b) Adenomatous Goiter without Hyperthyroidism (also referred to as)

- |  |        |
|--|--------|
| 1. Endemic   | goiter |
| 2. Simple  | "      |
| 3. Nontoxic  | "      |
| 4. Nodular   | "      |
| 5. Goiter with apparently normal secretory activity. |        |

## Toxic:

(a) Adenomatous goiter with hyperthyroidism (also called):

1. Goiter with increased secretory activity.
2. Toxic (basedowian syndrome).
3. Atypical hyperthyroidism (basedowoid syndrome).
4. Pseudo-Graves' disease.
5. Formes frustes of Graves' disease.
6. Thyro toxic goiter
7. Secondarily toxic "

(b) Exophthalmic goiter (also called):

1. Graves' disease.
2. Parry's disease.
3. Basedow's disease.
4. Toxic goiter.

We know comparatively little about goiter. We are largely ignorant of its etiology though we know that the thyroid is intimately concerned with iodine metabolism and that iodine is of value in the prevention of some kinds of goiters and the pre-operative treatment of other varieties. In many cases we cannot correlate thyroid pathologic states and the symptomatology of goiter. For example, acinar hypertrophy and hyperplasia is characteristic of exophthalmic goiter, but the pre-operative use of iodine may reduce the gland to the resting state so that a section of it as removed at operation cannot be differentiated from diffuse colloid goiter.

In this state of uncertainty it would seem that the nomenclature and classification should be as simple as possible; especially for the rank and file of us. The need for having some one simple classification is shown by the fact that twenty or more are found in the literature.

With this in mind I selected from the literature a short and simple classification, into the terms, of which any of the more complex classifications can be translated. This was sent to every professor of medi-



cine and surgery in the medical schools of the U. S. and Canada with a letter which read as follows:

"Because of the large number of terms and the diversity of classifications offered, I am making inquiry from the leaders in medicine and surgery in this country and Canada regarding the classifications which they use in their daily work.

I am quoting below a very simple classification:

- I. Diffuse Colloid.
- II. Adenoma.
  - (a) without hyperthyroidism.
  - (b) with hyperthyroidism.
- III. Exophthalmic.
- IV. Tuberculosis, syphilis, thyroiditis, malignancy.

In your opinion, would this classification be of value to the general practitioner who sees goiter and devotes his attention to it only as part of his day's work and not as a thing to which he devotes special attention or with which he is especially familiar?"

No claim was made that this was the best classification to be found or indeed that it was superior in any way to others appearing in the literature. The only thing urged in its favor is that it is very simple and can be quickly and easily learned. If every doctor on the continent understood it, the profession would speak one language regarding goiter, which would be a decided advantage over the present Babel-like confusion. If our knowledge of goiter was final or complete no such argument would hold. That happy time seems a long way off.

One hundred and forty letters were sent out. Sixty-seven answers were received. The interest in this problem is indicated by the large percentage of replies. Twenty-five percent is considered a very good return of answers to such letters. In this case fifty-one percent of replies were received. Of these, fifty-two (75.5 percent) felt that this classification might well be adopted by the rank and file of the profession. Six were definitely opposed to it and nine said nothing about it but merely indicated the classification they were using in their own work.

A great many objections may be urged against this classification and some have been pointed out, even by men who favored its general adoption. But if the terms are used as defined the whole thing is easily understood and may be quickly learned. It has already been pointed out that thyroid pathology and goiter symptomatology cannot always be correlated. The terms in this classification refer to gross pathologic changes, determined by the palpating hand before operation.

The *diffuse colloid goiter* refers to a smooth, uniform enlargement involving the entire gland, no nodules being visible or palpable. The gland has a smooth, globular feel and only occasionally are there slight or fleeting signs of hyperthyroidism.

The *adenoma* refers to a gland containing one or more nodules, either visible or palpable; or the enlargement may involve only part of the gland. There are times when nodules are situated deeply in the colloid goiter and their presence cannot be demonstrated until the gland is considerably reduced in size.

The *adenoma* with or without hyperthyroidism refers, of course, to the functional activity of the thyroid. The tendency of all adenomatous goiters is to become toxic; this tendency increasing greatly after the twenty-fifth year.

#### Summary

The confusion existing in goiter literature at the present time is illustrated by the definition of a few terms and the exhibition of a considerable number of classifications. No fault is found with any classification but their number is an indication that no one of them is satisfactory to a large number of men.

Until our knowledge of goiter is more complete the simplest classification and terminology would seem the best.

# Survey of Progress in Hay-Fever and Asthma Therapy

By A. R. HOLLENDER, M.D., and M. H. COTTLE, M.D., Chicago

ALTHOUGH great progress has been made during the past twenty years in the therapy of hay-fever and asthma, much diversity of opinion still exists regarding their etiology. Some investigators insist that allergy and anaphylaxis are the final solution of the problem, while others believe that immunity is the basis of rational therapy. The adherents of the theory that asthma is a toxic state, and that of the endocrinologists that the ductless glands are the causative factors; the more recent speculation concerning abnormalities of the vegetative nervous system, and the contention that alterations in the chemical constituents of the blood definitely influence these affections have greatly added to the confusion, to the end that the etiology of hay-fever and asthma is still as unsettled today as it was years ago.

We have surveyed the literature and have grouped the etiologic factors as follows: (a) allergy and anaphylaxis; (b) immunity; (c) toxic state; (d) endocrine dysfunction; (e) abnormality of the vegetative nervous system; (f) alterations in the chemical constituents of the blood.

## Allergy and Anaphylaxis

The word *allergy* is reserved by Cooke<sup>1</sup> for the reactions occurring in individuals naturally hypersensitive to the absorption of the specific allergen: the word *anaphylaxis* applies to those reactions produced in the human being or in the animal after an artificial hypersensitiveness has been brought about.

Eggston<sup>2</sup> (also many others) classifies allergic reactions into three types, according to the mode of entrance of the exciting factor. The first type constitutes the inhalants, such as pollens, cosmetic powders, household dust, animal emanations, and gasses; the second type results from the ingestion of foodstuffs, such as cereals, eggs and milk; the third group is due to bacteria.

Eggston states further that practically all patients with hay-fever have pathologic conditions in the nose and sinuses, such changes being primary or secondary to the irritation produced by exciting substances. About 40 percent of all asthmatic patients

show allergic reactions, the percentage being greatest in children and younger adults.

Wolff-Eisner (in 1906) and Meltzer (in 1910) suggested the anaphylactic nature of hay-fever and asthma, respectively. Since then many writers have given supporting evidence of the allergic nature of bronchial asthma. Inasmuch, however, as these proofs have been so aptly given by Cooke and quoted by us in some earlier articles, they will not be repeated here.

## Immunity

There is practically no disagreement regarding the *exciting* causes of hay-fever and asthma, nor is there any variance of opinion concerning the reactions produced by the absorption of the pollen elements and the products liberated by the proteolytic action of the patient's cells. Scheppegegrell<sup>3</sup> cites this and calls attention also to the fact that the immunity of the patient depends upon the completeness and rapidity with which the liberated products are neutralized. "The character of this process establishes the degree of susceptibility of the patient, and forms an important factor in what is called '*predisposition*.' " He accepts that this is probably affected by certain general conditions, concluding that immunity and predisposition in hay-fever are relative terms.

Much controversy has taken place relative to the bacterial proteins, since it is recognized that, "There is no correlation between the cutaneous reaction, the agglutinin or precipitin tests, and the recovery of the organism on culture."

The results achieved with vaccine therapy must be attributed to some form of non-specific immunity, and the group of cases so affected, classed with the nonallergic diseases. The recent investigations of Gottlieb<sup>4</sup> are in point. He had agglutination tests made with the serums of asthmatic patients against the organisms isolated from the nose, throat, teeth, bronchi and stool of each individual case, and controlled each series of tests with pooled serums of non-asthmatics. The organisms of thirty cases were used. In only one instance was agglutination elicited, although nineteen organisms gave positive skin reactions in the

individuals from whom they were isolated. The controls were all negative. As a result of his work, Gottlieb rightly assumes that precipitins in the patient's blood are not concerned with the production of bacterial allergy, if such a condition exists.

Chenisse<sup>1</sup> considers desensitization by means of vaccinothrapy as the most rational treatment of bronchial asthma, but appreciates the fact that all cases of asthma are not anaphylactic. He believed that as a result of the etiologic importance of tuberculosis in many cases of asthma, tuberculin therapy is advisable. In support of this, Chenisse quoted Drez, who claimed that 75 percent of cases of asthma are due to latent tuberculosis, and also Bonnamour and Duquaire who employed antituberculosis vaccines (killed bacilli), applied by means of scarification, in 21 cases. In 15 the amelioration was marked; the cough and depression were decreased.

Mention is made of the work of Storm van Leeuwen and Varekamp, who found that the patients who reacted markedly to foreign proteins also reacted to tuberculin. Bouveyron found that sensitization or desensitization usually corresponds to the allergy or to the tolerance for tuberculin, in cases of asthma.

The report, of Arviev, who employed tuberculinotherapy in 20 cases of asthma, is significant because of his conclusions that the effects of this treatment are unreliable. In 2 cases the tuberculin injections increased the duration and severity of the attack. In 5 cases the treatment resulted in initial improvement and in freedom from attacks for several weeks or for two months. In 3 cases the attacks decreased in duration and in intensity, following treatment, but reappeared in their original form. In 9 cases the tuberculin was without effect, and in one case it produced improvement lasting for three months.

Adherents of protein therapy naturally believe in this as the best means of desensitizing patients with the so-called allergic types of hay-fever or asthma. It is acknowledged, however, that complete relief following the injection of gradually increasing amounts of the offending substance is uncommon. Supplementary measures are necessary, and, in addition, further immunologic and biologic investigations of the exact basic nature of the mechanism of the hypersensitive reaction.

As a consequence of the unsettled state pertaining to bacterial proteins and their

relation to allergy, bronchial asthma complicated by chronic nasal and bronchial infection is said to be nonallergic. It seems proper and in keeping with this line of thought to include in such a classification hay-fever or asthma, complicated by any infection, whether in the nose, bronchus, intestine, or elsewhere. In fact, several writers, while not considering bronchial asthma from an allergic standpoint, attribute infection as the immediate cause of this condition.

#### Toxic State

This view is, to say the least, quite popular and certainly quite rational. To Adam<sup>2</sup> belongs much credit for the early elucidation of this subject. The second edition of his little volume "Asthma and Its Radical Treatment", published recently in this country, is the outcome of a renewed and continued propagation of this writer's valuable views. Adam, on the other hand, acknowledges a special debt to Bouchard's now almost forgotten book on autointoxication; for, he writes, "the records of many of my cases read almost like the clinical counterparts of some of his experiments."

Adam holds that asthma is primarily a toxemia which arises partly in the bowel; partly in the tissues; partly by absorption of nitrogenous poisons resulting from intestinal putrefaction under microbic action; but mainly is due to an error in nitrogenous metabolism, the result of imperfect oxidation or enzyme action. Adam continues, "The toxemia, whether arising in bowel or tissues or both, tends to show itself first as catarrh, later as spasm, in the respiratory tract. The toxemia shows itself in conditions, catarrhal and spasmodic, other than, but closely related to, asthma."

#### Influence of Ductless Glands

It has been pointed out that while much has been made of endocrine disturbance in asthma, it is less a cause than an effect of the toxemia. Such may be the case. From a practical standpoint, it matters little whether dysfunction of the ductless glands is produced by a toxic state or *vice versa*. It is fair to assume, however, that irregularities in the glandular mechanism of the body exist before a toxic state, on the same basis that a disorder of the thyroid is present in hyperthyroidism before toxic symptoms manifest themselves.

We are unfamiliar with the precise nature of endocrine dysfunction in hay-fever and asthma and the role of organotherapy is

purely empiric. If we accept that the parathyroids are regulators of calcium metabolism and detoxicating in their function, then a rational basis for parathyroid therapy is established. On the other hand, success with epinephrin in the treatment of the acute attack, the use of pituitary, thyroid, and other organotherapeutic products, with favorable results by some and indifferent results by others, tends to question the true value of such therapy.

Carlson<sup>1</sup> points out that the relations between hay-fever and asthma (among other affections) on the one hand, and parathyroid deficiency on the other, are still extremely doubtful. He states further that the thyroid gland, whose hormone influences the metabolism of practically every cell in the body, represents the only field of organotherapy calling for serious investigation with respect to diseases of the ear, nose and throat.

As regards pituitary extract, Brunn had good results with intravenous injection, not only in asthma but also in dyspnea of other origin.

Kern<sup>2</sup> believes that asthma is a toxic state but agrees with the authors that this is associated with a calcium deficiency. On the strength of this belief, parathyroid extract is indicated and with it other symptomatic therapy.

A striking case is cited by Ross<sup>3</sup> and quoted by Coke of a patient who developed asthma after an artificial menopause resulting from radium applied to the endometrium for profuse hemorrhage. The patient failed to respond to any treatment until gonad therapy was tried. This led to a cure of the asthma.

Coke<sup>4</sup> agrees that small doses of thyroid gland are often worth a trial. He advocates pluriglandular extracts but states that, while he has found no connection between asthma and the menopause, ovarian extract should be tried where there is any reason to suspect a deficiency of the ovarian hormone.

#### The Vegetative Nervous System

Let us now direct our attention to the fifth likely cause in our classification. Von Gordon<sup>5</sup> and Kummel<sup>6</sup>, abroad, and Pottenger<sup>7</sup> in this country believe that asthma is based upon lability of the equilibrium of the antagonistic nerves, vagus and sympathetic, in consequence of an abnormality of the vegetative (autonomic) nervous system.

Von Gordon writes, "The parasympathetic nerves, including the vagus, frequently represent the antagonists of the true sympathetic nerves. The sympathetic nerve is of great importance in the development of bronchial asthma, in the form of decreased reactivity. There is no mutual relationship between stimulability and tonus. By sympathetic hypotonia is meant a decrease in the reactivity of the sympathetic nerve-endings which may be increased by means of adrenalin."

The treatment of Kummel differs from that of Pottenger and others in that Kummel removes the cervical sympathetic on one side and claims thereby to get complete cessation of the asthmatic attacks. The effect of unilateral operation can be explained by the fact that the systems on the two sides are intimately connected with each other. If unilateral removal is unsuccessful, operation is performed also on the opposite side.

Pottenger directs his treatment toward relaxing the bronchial spasm and relieving the bronchial secretion by changing the electrolytic content of the cells. He administers calcium in order to restore the neurocellular equilibrium.

According to Von Gordon, decrease in the blood calcium, due to hypofunction of the epithelial bodies is one of the most important causes of the underlying lability of the vagus-sympathetic equilibrium.

#### Importance of Calcium

The calcium factor in asthma is not new. It has been known for many years that calcium therapy was often effective in producing favorable results in hay-fever and asthma when other measure had failed.

Rapid advances in blood chemistry during the past few years are responsible for renewed efforts to establish a rationale for calcium treatment. A deficit of calcium which can be measured in the blood represents the latest conception regarding the calcium factor in hay-fever and asthma.

The original experimental work by Novak and Hollender was conducted in perennial or "all-year-round" hay-fever, seasonal hay-fever and asthma. The findings based on measurement of the calcium content of the blood, in its total or combined form, according to the method of Kramer and Tisdal, were invariably low in the perennial type of hay-fever and sometimes low in seasonal hay-fever and asthma. Since this original investigation, similar studies have been performed by others, the report of Brown and



Hunter being of much interest. Their results are tabulated:

	No. of patients	Definite calcium deficiency	Low normal	Normal
Hyperesthetic Rhinitis ....	43	37%	21%	42%
Seasonal Hay-Fever .....	32	28%	34%	38%
Asthma .....	100	42%	23%	35%

Of a total of 166 consecutive patients upon whom calcium determinations were made, 39 percent had a definite calcium deficiency, 24 percent were low normal and 37 percent were normal.

These workers have differentiated distinct divisions in the findings as judged from the accepted normal.

It must be remembered, however, that a calcium deficiency alone is not the one and only cause of hay-fever and asthma. Hay-fever, while resembling asthma in pathogenesis, must sometimes be considered from an entirely different viewpoint. This is particularly true of perennial hay-fever or hyperesthetic rhinitis.

Our explanation regarding the causal factors of hay-fever and asthma is based on the calcium deficiency of the blood which is frequently demonstrable and an associated toxic state which is always present. This toxic state is usually the result of a septic focus, apparent or obscure, anywhere in the body and most often in the upper respiratory tract.

Treatment is directed towards these ends. While Pottenger aims to augment the calcium by administration of this drug, he has lost sight of the fact that the effects of calcium administration are not permanent unless the calcium is "fixed." Various methods have been tried to fix the blood calcium but none has been so successful as ultraviolet radiations.

#### Treatment of Asthma

The treatment of hay-fever and asthma as advocated by us involves a study of every system of the body and the correction of all obvious or determinable pathologic factors. This scheme is best illustrated by citation of the following case:

Mr. J. S., age 42, developed asthmatic paroxysms about four years ago after a severe, "acute cold." He had been treated by his family physician, on and off, during this entire period with no relief except that offered by hypodermic injections of epinephrin, which frequently were given six and seven times a day when the symptoms were severe. Protein injections and bacterial vaccines gave no results.

This patient reported to us for treatment and confessed that he had never had the

benefit of a thorough examination. The first step was hospitalization, during which a complete history was taken and a thorough physical examination performed by an internist. Then a rhinologic examination was made. Subsequently the following laboratory tests were ordered: (1) complete blood examination, including blood chemistry, (2) uranalysis, (3) sputum smears and cultures, (4) x-ray pictures of sinuses and teeth, (5) basal metabolism.

In spite of considerable difficulty in conducting these investigations owing to frequent paroxysms, the work was finally done. The internist reported evidence of chronic bronchitis and a moderate emphysema of the chest. The typical asthmatic wheeze could be elicited by auscultation; otherwise the findings were negative. From the history it was learned that the patient was always constipated.

The laboratory reported a normal blood count with a moderate eosinophilia (6 percent). The blood chemistry findings were normal for sugar, cholesterol and inorganic phosphates; the calcium, measured by the method of Kramer and Tisdall, was 9.4 mg. per hundred cc. of blood serum. The uranalysis was negative. Sputum smears and cultures showed a mixed infection of the catarrhal type. X-ray pictures suggested indefinitely some antrum involvement on left side and also several infected teeth. The basal metabolic rate was—15.

Nasal examination yielded evidence of a polypoid degeneration of the middle turbinates. The tonsils were submerged and the pillars markedly hyperemic. According to the history, there had been several attacks of sore throat.

Treatment was commenced by discontinuing epinephrin injections. Calcium chloride (Elixir chlorcalcium) was given, a tablespoonful (approximately 20 grains to the dose), five times daily. Thyroid extract was administered in  $\frac{1}{4}$  grain doses, three times daily. Morphine was injected hypodermically to relieve paroxysms.

After six days, the paroxysms were reduced to two daily. On the seventh day, partial (middle) turbinectomy and tonsillectomy were performed.

While in the hospital the patient received large doses of magnesium sulphate each morning before breakfast and a general diet free from meat and coffee. Diaphoresis was induced by the use of hot packs. On the tenth day the patient was discharged from the hospital. He was then having two to three asthmatic paroxysms daily.

On the fifteenth day after the teeth had been attended to, active office treatments were begun with general body treatments with ultraviolet rays. These were given on alternate days. After five radiations, the paroxysms were reduced to one a day.

Nasal treatment was now instituted and consisted of argyrol tamponage for 30 minutes, followed by ultraviolet rays intranasally, by the direct method, starting with 5-minute exposures.

With one month's office treatment, the asthmatic attacks had completely ceased



and there was no recurrence after four months. Calcium and thyroid therapy were reduced to two doses daily after the first month and to one daily after the second month and discontinued after the third month. The maximum time of ultraviolet radiations was twenty minutes generally and ten minutes intranasally.

Some patients require no nasal or tonsil surgery. One case in particular which is of interest is that of a woman who objected to intranasal surgery for multiple polyps but who improved under general radiations of ultraviolet and obtained relief of nasal symptoms by the use of galvanism.

#### Asthma in Children

Bronchial asthma in children is of especial interest because many pediatricians usually give up hope if correction of the diet fails to afford relief.

Several children ranging from 3 to 13 years have come under our care. One in particular had been directed to go to Colorado Springs because no corrective measures, protein injections nor medication had given relief. The attacks were frequent and numerous and no day passed without several of them. The blood calcium was 10 mg. per hundred cc. of blood serum. Tonsils and adenoids were pathologic, so that we expected no results before their removal because the child could barely breathe through the nose. There was a severe bronchial cough. No medication was prescribed. General ultraviolet radiations were given on alternate days. After the second week the attacks had ceased and from that time on, for a period of one month, the child experienced only one paroxysm. The cough also stopped. The tonsils and adenoids were removed after the fourth month of treatment. No recurrence of asthma after one year.

These cases are cited because we desire to emphasize the necessity for individualization in treatment. While we are confident that calcium plays a very important part, we appreciate that contributory etiologic factors also play a significant role.

#### Hay-Fever

Our results in perennial hay-fever with calcium and thyroid and ultraviolet radiations have now been strongly confirmed by many other investigators in this country and abroad. The rationale for the therapy is quite definite since perennial hay-fever practically always gives relatively low calcium determinations. The calcium and thyroid affords prompt relief and the

quartz light, by its calcium "fixing" properties, renders the relief permanent.

Beck and Pollock treated 25 cases of true hyperesthetic rhinitis by the method described. Most of the cases were of from one to five years' duration. These writers reported that in all of the patients in their series, the clinical symptoms disappeared completely and only in one did a recurrence appear. "This came on suddenly about six weeks after treatment was discontinued, just as severe as ever. The patient was again placed on the treatment and after 12 exposures all clinical symptoms cleared up and remain so at the present time. It is now seven months since the first patient completed the treatment, the last one only a month ago. True, sufficient time has not elapsed to say that a permanent cure has been effected, but in none of the patients was there ever a remission for so long a time." (Beck and Pollock.)

Seasonal hay-fever must be handled similarly to asthma. If, however, patients can be prevailed upon to submit to treatment on a prevention basis, much better results can be accomplished with physical therapy. In seasonal hay-fever, intranasal diathermy, employed two to four weeks before the onset of the hay-fever season, will aid greatly in desensitizing the nasal mucosa, if followed by intranasal ultraviolet raying.

During the acute attack general measures are most effective. Large doses of calcium salts combined with thyroid extract and intensive body exposures to the air-cooled mercury vapor quartz lamp have given favorable results in many cases.

It must be understood that the presence of extensive pathologic changes in the nose or elsewhere in the body always acts as a hindrance to success, not only with the method which we advocate but with any method. The influence of focal infection must be recognized, not only for its deleterious effects locally, but also because of the general toxic state it helps to produce.

#### Physical Agents

In surveying the therapy of hay-fever and asthma as advocated by different writers during the past two or three decades, we conclude that certain physical agents offer the most successful means of treating these affections. As in all scientific therapy, empiricism first prevailed but clinical and laboratory investigations with diathermy and ultraviolet rays have fairly well established rationales for their use.

These agents do not, however, replace the classic methods of medicine and surgery, but act only as valuable adjuvants to them. Without scientific diagnosis, elimination of pathologic factors and proper individualization, it is unfair to expect that, in physical therapy, the physician has an extraordinary means of curing the so-called hyperesthetic diseases of the upper respiratory tract. Certain it is that no physical agent with a single blow can produce a cure.

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## Headaches from the Standpoint of the Oculist

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IN the experience of the oculist, eye strain is the most frequent cause of headache. From 30 to 60 percent of functional headaches are wholly or in part due to eye strain. The complaint is probably due to the effort of accommodating in the presence of a refractive error, or maintaining single vision where a muscular imbalance exists, thereby producing a neuromuscular imbalance or tension.

While it is true that any type of refractive error may be the cause of headache, it is a well-known fact that simple myopia is least frequently concerned, while astigmatism, with or without hypermetropia, most commonly is the causative factor.

As a rule, headaches of ocular origin are associated with the use of the eyes for near work, having their onset in the afternoon or evening, and are relieved by sleep or a period of rest. Nevertheless, there are cases in which this symptom appears upon rising in the morning and becomes steadily worse throughout the day, especially where a muscular imbalance exists.

A fact worthy of emphasis is that very small degrees of ametropia, especially astigmatism, are frequent headache producers, more frequently so than are the large errors. Another important point is that ocular headache and pain in the eyes are often un-associated. Physical vigor and welfare do not exempt their possessors from ocular headache, even when the refractive error is a small one.

Headaches due to eye strain are usually supraorbital or frontal; less commonly occipital or vertical. It has been the experience of some observers that, in a general way, headaches in the frontal region are due to hypermetropia; in the temporal region to hypermetropic astigmatism; and in the occipital region to muscular imbalance.

A small degree of hypermetropia or hypermetropic astigmatism is physiologic for the human race and ordinarily gives rise to no symptoms. Even low degrees of muscular imbalance may be borne without discomfort. Nevertheless, the presence of refractive errors, however small, may, in certain individuals, be productive of the most annoying symptoms which, when optically corrected, are completely relieved.

When a small refractive error or muscular imbalance produces eye strain there is always an additional etiologic factor coupled with it, such as an unstable nervous system, lowered vitality from whatever cause or the excessive use of the eyes for near work. The conditions mentioned so often produce symptoms of eye strain in stenographers, bookkeepers and librarians, that one might almost classify it as an occupational disease in this class of workers, due, no doubt, to prolonged reading, changing the focus alternately from one near object to another or to faulty illumination.

### Eye Strain and Muscle Imbalance

In recent years, through medical inspection of school children, a good deal of infor-

mation has been gathered as to the etiological factors of eye strain in these children. The most common complaint has been doing their work at close range, thereby causing burning, itching, blurring, or watering of the eyes, frontal headache and smarting of the lids.

On careful examination of the children with these symptoms, one will be surprised to find that their distant vision will, in a goodly number of cases, be normal. When this is found to be the case and a careful refractive is done under a cycloplegic (atropine 1 percent), only a very slight refraction error will be found; nor will there be a muscular error. In other words, the findings are out of all proportion to the ocular symptoms of which they complain.

In most instances the cause of this condition lies in faulty hygiene, poor housing, poor or insufficient food, lack of sleep, etc. If, in such cases, glasses are prescribed, they will be worn for a time through compulsion, novelty, or imitation and will finally be cast aside. The majority of these little patients are underweight and anemic; others are scrofulous, with hypertrophied tonsils and adenoids, enlarged cervical glands, follicular conjunctivitis, eczema, etc. The course of treatment to be pursued is self-evident.

The incidence of ocular headache does not depend alone upon eye work at close range. Carsickness, shopping, cinema, and automobile headache are, in the majority of instances, due to eye strain. These types of headaches are spoken of at times as "Panorama Headaches", and are usually characterized by nervous instability.

While it is admitted by practically all observers that one of the commonest results of eye strain is headache due to refractive error, yet not all eye headaches are caused by errors of refraction, so that, when no relief is secured by a careful and full refractive correction, the condition of the ocular muscles should receive a very thorough investigation by the oculist. Esophoria, hyperphoria, exophoria, cyclophoria, anaphoria and cataphoria are all frequent causes of headache, in about the order named. Proper use of well-known methods should enable the oculist to determine whether or not the muscle imbalance is the cause of the symptoms.

#### Ocular Diseases

It is a common belief among the general public, and not very uncommon even among medical men, that, if headaches or other

symptoms of eye strain are not relieved by glasses, nothing further can be done. It is only in this way that we can excuse the frequency with which medical men refer patients to opticians for ocular examination. In doing so they apparently forget that the examination of the ocular apparatus is as much a medical affair as is a study of the heart and lungs.

The percentage of all headaches due to ocular disturbances is difficult to determine. Estimates vary from 50 to 90 percent, but probably 70 percent would be a fair one. It is evident that the frequency with which the eyes are proved to be the cause will depend on the completeness of the ocular examination, the correct interpretation of the findings, and the proper carrying out of the right treatment.

The visual system is peculiarly sensitive in many diseases of the eye, such as conjunctivitis, keratitis and iritis. Various organic diseases of the eyes, such as glaucoma and tumors of the orbit, cause headaches; the pain is usually on the side of the eye affected. Any increase in intraocular tension will cause headache. However, atropine increases the tension but sometimes relieves the headache, due to lessening the strain. Eserine diminishes the tension and may afford relief to headache. Let us deal with the above diseases separately:

*Conjunctivitis*, may be divided into:

- (a) acute catarrhal
- (b) chronic catarrhal
- (c) gonorrheal
- (d) trachomatous
- (e) diphtheritic, syphilitic, tuberculous.

In all the above conditions the patient may have headache, photophobia, the sensation of a foreign body in the conjunctival sac, burning and itching of the lids; but pain is not great unless the cornea and iris are involved.

*Keratitis*:—The form that we are most interested in is the interstitial or parenchymatous type and this is usually due to syphilis (hereditary). The headache may be very severe, or, on the other hand, it may be entirely lacking. Ulcers and abscesses of the cornea rarely cause headache.

*Iritis*:—May be primary, caused by constitutional diseases, as syphilis, scrofula, tuberculosis, rheumatism, acute infectious diseases or diabetes; or, secondary, complicating corneal disease and scleritis.

The iritis patient usually has headache, pain, photophobia, lacrimation, conjunctival

congestion, circumcorneal or ciliary injection, imperfect action of the pupil and impaired vision.

The use of atropine, 1 percent, is an invaluable diagnostic agent in some cases. The slow and imperfect response of the iris to the mydriatic influence of the alkaloid and the irregularity of the pupil are pathognomonic.

If the iritis involves the ciliary body we speak of it as an iridocyclitis, and we may have present, besides the above mentioned symptoms, edema of the lids, pain on pressure over the ciliary region, complete posterior synechiae and impairment of vision out of all proportion to the condition of the anterior chamber, or change of tension.

### Glaucoma

Of the organic diseases of the eyes causing headaches, the most important is *glaucoma*, which is characterized by increased tension. As regards its duration it may be acute, subacute or chronic; and it is either primary, when there has been no antecedent causal disease, or secondary, when the increase of tension is due to some previous ocular affection.

Primary glaucoma may occur with or without inflammatory manifestations and is accordingly called either inflammatory or simple. It has a doubtful origin or etiology, but several conditions are observed in eyes blinded by glaucoma which explain the increased tension.

In order to interpret these conditions, the drainage of the aqueous chamber must be understood. The nutrient fluid secreted by the ciliary body to nourish the vitreous and the lens and replenish the aqueous chamber passes through the pupil into the anterior chamber and escapes from the eye by filtration through the pectinate ligament, into Schlemm's canal and the venous system. The angle formed by the iris, the pectinate ligament, and the posterior wall of Schlemm's canal is known as the *filtration angle*. It is evident that any condition which interferes with or obliterates this angle will prevent the drainage of the eye, whereby an accumulation of the aqueous will occur, an increase of intra-ocular tension being the inevitable consequence.

Acute, primary, inflammatory glaucoma is bilateral, one eye and then the other being affected, and occurs almost exclusively in individuals past forty years of age. It is sometimes preceded by premonitory symptoms, as dimness and rainbow vision;

but the onset may be sudden and violent in the fulminating form.

After some exciting cause, the eye becomes painful and a neuralgic pain radiates from the affected eye over the temple and side of the head. The lids are swollen and the conjunctiva is congested. The pupil is usually dilated, and does not react. The tension is more or less increased and the anterior chamber is shallow. The arteries are smaller and the veins larger.

Subacute, primary glaucoma is characterized by a recurrence, at intervals, of imperfect vision at the beginning; but later the increased tension is permanent, and its results, the glaucomatous cupping of the disc and contraction of the visual field due to insufficient nutrition of the retina, take place.

Absolute glaucoma implies that the eye is sightless, the tension is excessive, and the disc excavated. The cornea may be transparent but insensitive, the iris reduced to a narrow band, and the anterior chamber is very shallow. It leads to ectasias of the sclera, particularly the equatorial form, opacity of the lens, and a haziness of the cornea.

Glaucoma simplex is a chronic primary affection, the only symptom of which is impairment of vision. It develops slowly and insidiously, and may require several years to destroy the sight.

The treatment of all the above glaucomas is palliative and operative. Eserine and pilocarpine, because of the myosis they produce, increase the permeability of the filtration angle and reduce the intra-ocular tension. Morphine, rest, warm nourishment, laxatives and the local use of cold are valuable palliative measures in certain cases.

Iridectomy, scleral trephine, cyclodialysis, anterior or posterior sclerotomy and irido-sclerotomy are the operations suggested for the relief or cure of primary glaucoma. Enucleation is indicated in absolute glaucoma when, on account of atrophy of the iris, an iridectomy cannot be performed or would be useless to relieve the pain.

In *secondary glaucoma* the increase of the intra-ocular tension is due to some ocular disease which causes retention of the intra-ocular fluid. Some of the conditions causing this condition are: Annular posterior synechia, corneal wounds and ulcers, serous cyclitis, dislocated lens, postoperative cataract operations, and intra-ocular tumors. The treatment depends, of course, upon the cause.



### Migraine

Migraine headaches can usually be differentiated from those resulting from eye strain if a sufficient history be taken. This malady affects women more often than men, in a proportion of about 3 to 1. There is a marked hereditary tendency. In women it has its onset about the age of puberty and usually continues until after the menopause, pursuing its course in the form of paroxysmal attacks at regular intervals. Such is the general rule which finds many exceptions. The attacks may occur weekly, fortnightly or monthly and are very commonly present at the time of menstruation.

Generally, the headache at first involves but one side of the head—usually the forehead or occiput—gradually extending over the whole calvarium. The pain is of a throbbing or binding nature and may be accompanied by sparkling light before the eyes which increases in extent until finally the patient is temporarily blind (scintillating scotoma). During these attacks he may complain that he sees only a portion of an object—the right or left, upper or lower half (Hemianopia). Dizziness, nausea and vomiting are commonly present. Such a seizure usually lasts from six to twelve hours, sometimes longer—even for two or three days.

All gradations of the above clinical picture may occur. It is usually the atypical case who consults the oculist, with the hope that, by a proper fitting of glasses, the headaches will cease. Minor errors of refraction should be corrected and in a few cases this will prove helpful. That such a remedial measure will abolish an attack of migraine would be asking too much.

### Hysteria and Neurasthenia

Quite commonly hysterical and neurasthenic patients refer their headaches to eye strain. As clinical entities, these conditions are so closely allied, from an ophthalmological standpoint, that their symptomatology may be spoken of collectively. All gradations and combinations of the following ocular phenomena may be present; headache, muscular imbalance, poor visual memory, limitation of visual field, imperfect accommodation, drooping of the lids, irregular pupils, temporary blindness, optical hallucinations and limitation of the color and light sense.

While it is true that the exhaustion field is characteristic for neurasthenia, it sometimes occurs in hysteria. In this class of cases, the headache is more a sense of pres-

sure, weight or fullness and, while it may be frontal or occipital in location, is frequently referred to the vertex. Tenderness of the scalp is not uncommonly associated with it. Optical correction of existing minor errors of refractions or measures for the relief of the low degrees of muscular imbalance may prove helpful, but are rarely adequate.

### Vacuum Headache

Sluder, in his book on "Headaches and Eye Disorders of Nasal Origin", speaks of a so-called "vacuum headache" which is not infrequently mistaken for headache of ocular origin. It is described by Sluder as a "low-grade, unending headache, brought about through the closure of the frontal sinus, without nasal symptoms or signs (e. g. obstruction or secretion), and made worse by use of the eyes. The pain experienced is due to a partial absorption of the air contained within the sinus, with a resulting negative pressure rendering the walls sensitive. The headache, though frontal, is occasionally referred to the external angular process of the frontal bone. This type of headache is characteristically present in the morning, becoming worse with the use of the eyes for near work. However, there are cases where headaches are precipitated only by the use of the eyes for near work. Unlike headaches due to eye strain, which are generally of daily occurrence, vacuum headaches characteristically appear at irregular intervals and may disappear as suddenly as they appear. The headache is increased on stooping and is often attended by a sense of dizziness, just as in a case of empyema of a frontal sinus."

Ewing's sign, "tenderness of the upper, inner angle of the orbit at the point of attachment of the pulley of the superior oblique muscle and internal and external to it", is pathognomonic of the condition. As the function of this muscle is to turn the eye downward and inward, it is called into play during the act of accommodation, necessitating a tugging at the tender point. The tenderness of this area is explained by Sluder as, "arising from a closure of the outlet of the frontal sinus, thereby producing a negative pressure, through absorption of the oxygen therein contained, with a resulting congestion of the lining membrane together with the underlying bone."

### Treatment

In the treatment of headaches, it is the same old story; "find the cause and remove



it." If this could be done in every case, what a blessing it would be to the patient, and how gratifying and satisfactory to the doctor! How many of us have had cases such as the one described so beautifully by Algaier, in the *International Journal of Medicine and Surgery* some time ago.

"The patient, a lady, starts with her family doctor; he makes a diagnosis, treats her for a while and finally in disgust refers her to an eye specialist. The oculist finds some condition which he corrects with glasses and smilingly tells the patient to wear them and the headaches will cease. She thanks the doctor, pays her bill (at least she should), and wends her way homeward. In about ten days she returns with the same headache, and the oculist looks wise, examines the glasses and advises her to consult her family doctor. Back to the physician she goes, and still the headache persists.

"Somewhat provoked after receiving a note from the oculist that he had fitted the patient with glasses and that the headache would cease, the family physician sends her to a specialist on internal medicine. He goes over the case and tells her it is her gall-bladder or an autointoxication, and puts her on a diet, duodenal drainage, etc., for two or three months. But still the headache persists.

"Then the internist tells her that she must have her pelvic organs examined and refers her to a gynecologist. The latter finds a cystic ovary or a retroflexed uterus and corrects it with one or more operations. The patient is then told to await results and that in due time her headaches will be gone. In the specified time she returns to the gynecologist with her headache and he refers her to the urologist for a kidney and bladder examination. Generally nothing is found here and he refers her back to her family physician or rather she goes back to him in despair. He in turn sends her to a nose and throat specialist who says her whole trouble is in her sinuses and does a submucous resection, washes out both antrums and perhaps resorts to a radical ethmoid and frontal operation. Finding nothing more to do in the nose he notes that her tonsils are infected, performs a tonsillectomy, and later sends her to a dentist to have her teeth examined.

"When through with these men, the patient returns to her family doctor without her tonsils and turbinates, with new teeth and the same headache. Then to the neurologist she is sent, who makes a diagnosis of syphilis, although the Wassermann is negative. He puts her on antiluetic treatment for six months and still the headache persists.

"The patient, in disgust, forsakes the medical profession and goes with a lady friend of hers to an osteopath or chiropractor. A misplaced vertebra is found and is replaced and her headaches are cured—for ten days, when they return again.

"She finally winds up in the New Thought or Christian Science temple and the doctor is not sorry. It is another case of the doctor getting rid of his patient but the patient not getting rid of her headache; and we have all had just such cases."

Now what of the solution? I will try to sum up in a general way what, in my opinion, the doctor should do:

*First.*—Get a good personal history, and take plenty of time in getting it. Do not do all the talking; let the patient talk.

*Second.*—Make a careful examination of the patient's eyes, preferably under a cycloplegic. If it is a case out of the ordinary and you want a general examination made, have it done by a competent man. If you do not do nose and throat work and want any special examinations made of the sinuses or some x-rays made have them taken care of. Have all laboratory tests made that you deem necessary. Get *personal interviews* with your consultants and *talk the case over*.

*Third.*—Consider all reports and suggestions impartially, with what you know of the *patient himself* and then do or have done what your professional judgment dictates, keeping the patient under your charge and observation.

There are, perhaps, some headaches which cannot be cured, but this plan, in the hands of a thoughtful and well-informed man, will take care of most of them.

# Problems of Obesity\*

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IT is only within comparatively recent times that the condition known as obesity or corpulency has attracted much medical attention. In fact, it is only since the development of endocrinology that any precise notions have been gained regarding the nature of some kinds of obesity. The desire for slenderness on the part of women has directed particular attention to this subject and has stimulated medical research into the causes and treatment of obesity, as well as the dangers attending improper methods of dealing with it.

## Definition of Obesity

Obesity may be roughly defined as a superabundant generalized or localized development of fat tissue within the body. The term superabundant must be construed in relation to some arbitrary standard; and this standard is the average body weight, corresponding to age and height, as worked out in the medicoactuarial statistical tables, based on the observation of many hundreds of thousands of individuals. McKinlay<sup>1</sup> considers the term obese applicable when the body weight of an individual is more than fifteen percent above the weight calculated for his age and height; others, such as Donaldson<sup>2</sup>, give the limit as ten pounds above the normal weight as defined.

Obesity as defined is not a disease entity, but rather the expression of an underlying abnormal condition which *ex facto* may be considered as pathologic. No matter how caused, obesity, in a medical sense, is generally a manifestation of a pathologic condition and just as much a disease as is cancer or any other condition which expresses itself in abnormal tissue growth. Nevertheless, we cannot apply our definition too narrowly, since there are exceptions to every rule. It is quite possible in the vagaries of biologic development that there may be individuals who, though obese by definition, may in no sense be pathologic subjects on account of the obesity alone; such cases, however, may be considered as very exceptional. It should also be kept in mind that climatic conditions, the kind of food used, and the general mode of living of individuals, may affect the definition and pathologic aspects of obesity, when applied to them.

## Classification of Obesity

Obesities depending upon circumstances may be observed in the young and old of both sexes. The most generally accepted classification of obesity, according to its nature, is its division into exogenous and endogenous types.

Exogenous obesity is considered as due to over-nutrition; i.e., a disproportion between the caloric intake and the bodily expenditure in the form of heat and energy. This does not necessarily imply that large quantities of food are consumed; but it does include all cases in which the quantity of food taken is so large that it cannot be disposed of by the ordinary bodily metabolic agents, or cases in which the metabolic processes are defective and insufficient to dispose of normal food intake.

It is somewhat difficult to limit the meaning of endogenous obesity but it is generally defined as due to some abnormal function of the agencies governing metabolic processes within the body. Certain of the ductless secretory glands, more especially the thyroid, pituitary, gonads and suprarenals, are particularly incriminated, they being known to be regulators of different processes in metabolism and growth. It is also generally considered that the so-called exogenous or simple nutritional obesity is much more frequently met than the endogenous type, although it seems to me that in the exogenous type there is very often a primary glandular imbalance or else a secondary disturbance of the secretions due to tissue changes.

Anders<sup>3</sup> classifies obesity as plethoric or anemic; he further states, "it is probably safe to assume that the ductless glands rarely play an etiologic role in this affection." The progress of endocrinology should afford grounds for a revision of this latter opinion.

The classification of obesity given by Strouse and his associates<sup>4</sup> appears better to meet the types observed clinically. These writers classify obesity as: (a) obesity due to overeating or under-exercise; (b) obesity due to thyroid deficiency; (c) obesity associated with disorders of other ductless glands; (d) obesity of unknown etiology, the so-called constitutional obesity.

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While the foregoing classification is expedient, it does not appear exactly to meet the needs. "Constitutional" obesity, for instance, may be due to inherited endocrine defects, and in the nutritional class there is often also an underlying dysfunction of one or more ductless glands due to some previous infective or other disease. Indeed, the whole subject of obesity, including its definition, needs thorough physiologic investigation of the factors involved in it. Obesity has, in the past, been too carelessly accepted as a general term based on the clinical symptom of adiposity. In the case of an unusual projecting mass on any organ of the body, we are not satisfied with the generic term tumor, but carefully inquire into the nature of the lesion and definitely class it according to accepted types. Probably half a dozen, at least, of distinct types of obesity could in a like manner be standardized.

#### Pathologic Anatomy in Obesity

The characteristic anatomical change in obesity is an abnormal deposit of fat tissue, either generalized or localized or both. The water balance of the tissue is also frequently abnormal. In localized adiposities it is not always fat alone which infiltrates the subcutaneous cellular tissues; the proportion of water is also increased and myxolipomatous states are not rare. Brown and Keith<sup>1</sup> have observed that the circulating blood and plasma volume, when compared with body weight, is less in obese than in normal persons. As a general rule fat deposits are more abundant in regions where the circulation is poor.

Obesity must be differentiated from the fat intoxication described by Allen<sup>2</sup>, who found that animals fed on diets high in fats and not balanced with sufficient quantities of other foods developed first constipation and later a condition termed fat intoxication. Allen has also shown that lipemia is not due to any primary disturbance in fat metabolism, but is a secondary phenomenon due to the breakdown of carbohydrate metabolism as the result of endocrine disturbance.

#### Etiology of Obesity

##### The Constitutional Factor

Obesity was for a long time accepted as a more or less physiologic development associated with advancing years. The view that it is the manifestation of a remediable or preventable pathologic condition has come into prominence only with the development of our knowledge of endocrinology and the observations that definite types of obesity

were concomitants of definite endocrine abnormalities.

As already stated, the classification of the obesities leaves much to be desired, especially when dealing with etiologic factors. It will therefore be necessary to consider the etiology of obesity under the accepted broad distinctions of the exogenous or nutritional and the endogenous types.

Let us first consider simple nutritional obesity in which there is a distinct disproportion between the food, including the fat, intake and the bodily expenditure in heat and energy. There can be no doubt that a great majority of our people habitually eat too much, even on the basis of a normally active life. But there is not, as a rule, even normal activity, owing to the many labor-saving devices invented and the practical abolition of the exercise of walking by modern methods of transportation, including the automobile. Instead of walking some miles each day, many persons consider it a hardship to walk a block or two. There are thus no avenues for the using up of the energy derived from normal food, and much less for the excess energy from superabundant and fatty foods. Furthermore, in the case of women, restricted child-bearing and resulting gonadal secretional diversion is probably connected with the prevalence of premature corpulency.

The experimental investigations of Strouse and his associates<sup>3</sup> show that the metabolism of the obese does not react to the several foodstuffs like that of normal individuals. The obese tend to store rather than to burn fats derived from carbohydrates. This foodstuff, being the main source of heat, energy and work, when not so used, remains in the body in the form of fat. There is also a discrepancy in the metabolism of proteins between obese and normal persons.

It is not at all clear whether the obesity in such cases is the cause or the consequence of defective metabolism, but in either case there is a vicious circle. Strouse thinks that there probably is some anomaly of fat metabolism in the obese, the exact nature of which has not been determined. This seems probable enough when we consider the observed fact that many obese and active persons preserve their weight and even increase it on a low caloric diet; while others, known to be of inert dispositions and consumers of large quantities of food of high caloric value, do not become fat. Such considerations lead us to the conclusion that there must be some consti-

tutional factor—some diathesis or temperament—affecting metabolism and obesity; and that the latter is not always the expression of a disproportion between the food intake and bodily expenditure. Indeed, Grafe<sup>7</sup> considers that in every case of obesity from overeating there is a constitutional factor involved and that the attempt to define two types of obesity does not conform to facts.

The subject of heredity and constitutional factors in obesity has been investigated within recent years by Davenport and Nelson<sup>8</sup>. The conclusions of these investigators, based on the study of the data collected by the Eugenics Record Office of the Carnegie Institute, of Washington, D. C., were that obesity and abnormality of build did not greatly depend upon nutritional factors, but that both constitutional and cultural factors played a part. In some cases idiosyncrasies of build may be due to endocrine idiosyncrasies; in others, to more general peculiarities of metabolism.

The question of diatheses and temperaments naturally arises here. A diathesis is a particular disposition of the organism which orients morbid manifestations in a determined sense and impresses characters which approximate these manifestations one to the other. Race, family, method of living and kind of food eaten, are factors which determine a diathesis; also intoxications and chronic infections which may involve the organs concerned with metabolism, including the endocrine glands. Races and families are known to present certain temperamental peculiarities which more or less correspond to the humoral designations of the ancients, but are now to a great extent attributed to peculiarities of endocrine function, which is hereditary.

#### The Endocrine Factors in Obesity

The justification for ascribing obesity (at least in many instances) to disturbances in the function of certain of the endocrine glands rests upon confirmed experimental findings and clinical observations. The glands particularly involved appear to be the thyroid, pituitary, gonads and suprarenals. Obesity, either generalized or localized, is a well-marked part of the clinical picture observed in disturbance of the secretions of these glands. Thyroid dysfunction, as seen in the obese myxedematous and cretins, may be an inheritance from a hypothyroidic mother. Much of thyroid obesity is connected with marked retention of water. Grafe<sup>7</sup> shows that abnormal water reten-

tion in the tissues is one of the sequelae of thyroidectomy observed in experimental animals. The obesity due to thyroid dysfunction is a form of myxolipomatosis.

Obesity of a localized type is seen following castration and testicular or ovarian insufficiency, including post-menopause adiposity. The sex glands are known to exert an influence on body shape. Serkudov<sup>9</sup> has shown that there is a supporting reciprocity between the ovarian secretion and the cortical suprarenal secretion by which one can supply the functions of the other, in whole or in part.

The pituitary gland is connected with the growth of the body skeleton, and also appears to be concerned particularly in the metabolism of fats and other hydrocarbons. Froehlich<sup>10</sup> was the first, in 1901, to describe the particular pituitary syndrome which Bartels<sup>11</sup> afterwards called dystrophia adiposo-genitalis, the underlying cause being a pituitary tumor. Paulesco<sup>12</sup> showed experimentally that, in animals, partial removal of the anterior lobe of the pituitary body leads to obesity. Langmead and Calvert<sup>13</sup> remark that, in children, obesity can be considered as pathologic only when it is accompanied by disordered growth, and then the cause is most likely a pituitary gland disturbance.

In such young obese patients the blood-sugar curves are frequently abnormal and can be brought back to normal by administration of posterior lobe extract. This glandular secretion appears particularly to affect carbohydrate metabolism. Gardiner-Hill, Jones and Smith<sup>14</sup> report a series of sixty cases in which adolescent obesity was associated with an underlying disturbance of carbohydrate metabolism. These writers connect the obese state with pituitary dysfunction and remark that pituitary obesity is localized especially in the hips and shoulders. Sixty-eight percent of this series had a basal metabolism rate below normal, a condition which Plant<sup>15</sup> had already shown to exist with pituitary obesity.

In view of the controversial opinions regarding pituitary obesity being due to actual pituitary tumors, neoplasms or other pathologic processes in the immediate vicinity, such as the floor of the third ventricle, it would be premature, at the present time, to express any decided opinion. The experimental work of Carlson<sup>16</sup> suggests that hypophyseal extracts may not be of value in reducing obesity; on the other hand we have the experimental work of Paulesco and



the clinical findings of Langmead and Calvert, as well as the recently reported clinical finding of Mara<sup>10</sup> of obesity immediately following damage to the middle and posterior lobes of the pituitary, as disclosed by autopsy. Clearly, therapeutics here must await further experimental work with regard to the exact functions of each lobe of the pituitary body.

In reference to gonadal obesity, the development of corpulency by women following the menopause is well known; also the obesity of eunuchs as well as of the castrated, both male and female. These obesities are more likely to be localized in the abdominal region and buttocks rather than the generalized due to over-nutrition.

Much has been written regarding the fact, noted by Means<sup>11</sup>, that in the exogenous type of obesity the basal metabolism is normal in a very large majority of cases. Yet Strouse and his associates observed, in the obese, a decidedly lowered specific dynamic reaction to carbohydrates and especially to proteins, which was the opposite to that observed in thin persons. In endogenous types of obesity the decreased metabolism rate to which the system has become adjusted results in a saving of calories from the food intake, if this is in excess of requirements, and the equivalent of this excess is expressed in fat production.

Too much importance should not, however, be given to basal metabolism findings. Exact deductions from exact basal metabolism findings would be justifiable if man were a mechanical heat engine—which he is not. The biologic mechanism of man provides extraordinary variations and capacities for adjustment, regulation and economy, so that similar results are often obtainable under conditions which differ widely.

#### Pathologic Evolution of Obesity

Although, at the present time, the greatest amount of attention is being given, especially by women, to the prevention or reduction of obesity, on purely esthetic grounds, yet it is not merely from esthetic considerations that obesity is objectionable and should be corrected. Obesity, apart from destroying the grace and beauty of the normal human figure, is a physical handicap which restricts movement or exertion and is thus a cause of social and economic loss; but besides this it is a predisposing or direct cause of diabetes, arteriosclerosis, arterial hypertension, and cardio-renal disease. Joslin<sup>12</sup> states that, in 1063 cases of diabetes, well-

marked obesity preceded the diabetes in more than forty percent. Preble<sup>13</sup> found that, out of 1000 cases of obesity, 432 showed evidence of organic and 230 of functional heart disease, and in 463 the kidneys were impaired; 75.7 percent showed glycosuria. The deaths from organic heart disease were about ten times the normal in this group, and the deaths from Bright's disease and pneumonia were double the normal.

The medico-actuarial statistical tables show that every pound of fat above normal for age and height is reflected in a regular increase in the mortality rate; the most favorable rate, in fact, not being in those which show normal weights but in those whose weight is sub-standard.

Prepubertal obesity in children, when pathologic, may be a precursor of imperfectly developed sex characters and organs. Mara<sup>10</sup> recommends that obesity in children, with metabolism of five percent below normal, should be treated by thyroid extract, and by ovarian extract in the case of girls.

#### The Treatment of Obesity

Perusal of the literature of recent years shows rather diverging views regarding the treatment of both nutritional and endogenous obesities. Moreover, it is too much taken for granted that obesity depends solely on an excessive intake of nutriment, so that its treatment by dietary restrictions and exercises is, in many cases, insufficient and irrational. Du Bray<sup>14</sup> justly points out that dietary restriction is but one factor in the broad hygienic treatment of exogenous obesity, yet the public at large is possessed by the idea that if they starve they will reduce their weight.

As Mason<sup>15</sup> remarks, most methods of reducing fat are based on the principle of using a low caloric diet and at the same time maintaining nitrogen equilibrium; this is usually done by restricting fats and carbohydrates, increasing heat production of exercises, and administering drugs to stimulate metabolism.

But there are discordant practices. Weiler<sup>16</sup> restricts carbohydrates but does not restrict fats. He thinks that obesity depends upon deficiency of the insulin hormone and administers this artificially. Mason thinks that in reducing obese individuals of exogenous type it appears quite unnecessary to maintain them in nitrogen equilibrium; sub-caloric feeding does not result in a serious nitrogen loss. For Mason, the total caloric



intake is not the determining factor in the rate of rapidity of loss of weight, but the original weight of the individual is.

On the other hand, McLester<sup>28</sup>, while cutting down the food intake of ordinary obese persons to that which will yield from 18 to 22 calories per kilo of ideal body weight, thinks that preservation of nitrogen equilibrium is of paramount importance. He thinks that at least fifty percent of the energy content in food should come from carbohydrates and therefore believes that the avoidance of starchy and sweet food-stuffs is without reason. Fat, however, may be reduced to a minimum or omitted.

Turning to the constitutional endocrine factors in obesity, Grafe thinks that corpulency is due to retention of water from the food, which is due to thyroid secretion deficiency. McKinlay also refers to the abnormal water balance in the obese and its correction by thyroid extract.

Lisser<sup>29</sup>, writing upon the frequency of endogenous endocrine obesity, remarks that dietary restrictions fail to cure patients whose overweight depends upon faulty metabolism due to endocrine abnormalities. He points out that the dictum that thyroid extract is contraindicated with a normal metabolic rate is not tenable. Mason's use of thyroid extract is controlled by the basal metabolism rate. Lisser got excellent results in 30 cases in which he administered glandular extract and thinks that each case should be individually studied on its own merits, as no one method of treatment is suitable to all.

Achard<sup>30</sup> reports excellent results in a series of cases of obesity from the treatment instituted by St. Lorant; i.e., a combination of thyroid feeding with injection of foreign proteins. This method has the advantages that it does not necessitate dietary restriction and can be applied while the patient remains in bed.

While obesity in prepuberty may be more or less normal, it becomes pathologic when it is accompanied by endocrine stigmata. Indeed, a moderate adolescent obesity is generally the forerunner of marked obesity in middle age.

Langmead and Calvert<sup>31</sup> suggest that, in young obese subjects, the use of thyroid extracts may reduce the weight, but that posterior pituitary extract appears to affect the carbohydrate metabolism favorably. These writers recommend glandular therapy when the blood sugar curves of youthful obese subjects are abnormal.

The first essential on which the rational treatment of any case of obesity must depend is clearly to distinguish the nature of the obesity so far as possible, as correct treatment will depend on this. The familial and personal habits and history must be carefully investigated in each case and any evidence of endocrine stigmata, past or present, sought. It is only when such underlying factors can be ruled out that dietary discrepancies can be incriminated. Even if there is no evidence of a constitutional factor, failure of obese cases to reduce after a reasonable trial of hygienic reducing measures would justify the use of glandular therapy. Glandular dysfunction and its sequelae may be present, even when not apparent. In some cases, lipemia or fat intoxication, as described by Allen<sup>32</sup> and already referred to, may be observed in the very obese but these conditions are the result of obesity and are not the cause of it.

Constitutional or hereditary obesity should manifestly be treated on a different basis from that underlying the management of simple nutritional obesity. The factors determining the constitutional deficiency may or may not involve the endocrine glands. To treat constitutional obesity by specific diets (such as the Allen diet) or by exercises, passive or active, would be illogical. The source of trouble in these cases is not the intake of food but rather the agencies which dispose of it. Nevertheless, some types of endogenous obesity may call for dietary restrictions.

On the other hand, to treat a simple, exogenous obesity due to dietary indiscretion by the administration of glandular extracts would be equally erroneous and may be harmful. Such organic therapy is justified only when there is clearly established evidence of its necessity; and even then the treatment is difficult, as more than one gland may be involved, and pluriglandular therapy necessitates precise prescribing. We often find that nutritional obesity is superimposed upon localized obesity due to a glandular dysfunction and that a combination treatment is called for.

Although a lowered basal metabolism rate at once suggests thyroid dysfunction, a normal basal metabolism rate does not exclude dysfunction of glands connected with metabolism. There is an inter-relationship between the endocrine secretions, so that organotherapy may indirectly stimulate or adjust metabolism.

Cases of obesity which, after close investigation, appear to be of the so-called exogenous type may, after reduction of the caloric intake, fail to show a reduction in weight. The presumption of an endocrine defect in such cases seems justified and carefully considered glandular therapy may be beneficial.

The most important changes arising from too rapid reduction of fat tissue are excessive production of fatty acids and acidosis. In mild cases of obesity, a loss of from three to six pounds per month should suffice. In cases of excessive obesity with cardiac decompensation, up to thirty pounds a month can be reduced without danger if the patient is carefully supervised.

The surgical removal of large deposits of fat, especially about the abdomen, may be called for in very special circumstances. The dangers arising from such an operation seem out of proportion to its advantages in ordinary cases. Besides, it is only a temporary expedient. Reduction of superabundant fat prior to any surgical operation appears to be a well-indicated preventive measure against postoperative fat embolism and pneumonia.

### Comment

The present-day classification of obesity is as confusing as it is unsatisfactory. In most cases it is too broad to meet all requirements.

The endocrine factor is not properly understood, and therefore is underestimated. On the other hand, basal metabolic readings are not a sufficient guide in the proper management of nutritional disturbances.

The treatment of obesity can at no time be carried out along specific lines, and may frequently be a hazardous undertaking.

The treatment of obesity without the proper consideration of all factors involved, such as nutritional irregularities, endocrine disturbances, heredity and habits, is not only unsuccessful but in many cases harmful.

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# Artificial Leucocytosis in the Treatment of Gonorrhea

## Parenteral Injections of Mercurochrome, Metaphen and Other Drugs (A Preliminary Report)

By BURR FERGUSON, M.D., Birmingham, Ala.

THE discovery by Pasteur of the organisms causing the pyogenic infections was followed by Lister's finding of the germicidal effect of solutions of carbolic acid on these harmful bacteria. This revolutionary teaching marked an epoch in medical and surgical procedure. Since that era all of the agents most used in the treatment of infections, whether for external or internal use, have been but developments of the germicidal theory.

Ehrlich, in his talk before the British Medical Society in 1913 described salvarsan as the agent for *therapia sterilisans magna*. Within a very short time this drug was in general use all over the world and definite proof of its lethal effect on all spirochetal infections was apparently established. In application of the same idea, Dr. Hugh H. Young, after many laboratory determinations, found the potent germicide, mercurochrome, which is now widely used in America against all infections, both as a local application and for intravenous injection.

A marked variation from this system of therapeutic procedure is found in the treatment of diphtheria by the administration of the serum of a horse which has been immunized against Klebs-Loeffler bacilli. It is taught that the patient with this infection recovers because of the neutralization of the toxins of the infection by the antibodies developed by the immune horse.

It has been proved definitely that mercury and arsenic are not specifics for syphilis alone. Various preparations of mercury are reported to have been used successfully in the treatment of many infections, so one would conclude that other pathogenic organisms are subject to the same influence which gives us control of the leucic infection. That this influence is not germicidal is confirmed by the recent publication of the results of determinations by Dr. Voegtlin, of the U. S. Public Health Service, with arsphenamine. In this report it is shown that this drug, after its intravenous administration, produces no lethal effect on bacteria in the blood serum.

Metchnikoff proved, twenty-five years ago, that blood containing other poisonous agents was an excellent culture medium for anthrax, cholera and other harmful organisms. It would, therefore, appear that further search must be made for the cause of the undoubted beneficial effects of these drugs, since these effects are not primarily germicidal.

In such a search it is found that, when the body is invaded by almost any of the dangerous bacilli or is subject to any serious break in the normal physiologic and anatomic relations, the white blood cells are immediately increased in number; the stronger the individual the greater the increase.

The following table indicates that the reactions produced by widely used drugs conform very closely to the purely natural inflammatory reaction. The conclusion that the principal factor in the action of these drugs is their power for the stimulation of the production and activity of the leucocytes seems reasonable. Metchnikoff used broth to stimulate their production; Peterson used milk; and another proteid, diphtheria antitoxin, is very generally used and the greater the number of units administered, the

Table 1

### Reactions Produced by Injecting Various Drugs

	Patient	Leucocytes	Leucocytes after 24 hrs.	Leucocytes after 7 days
A*	No. 1	7,000	20,400	
	No. 2	8,000	17,000	
	No. 3	18,000	21,800	
B*	No. 1	11,000	14,000	
	No. 2	9,300	12,700	
C*	No. 1	7,200	10,200	9,800
	No. 2	10,400	22,800	21,800
	No. 3	7,200	10,200	9,300
	No. 4	7,600	10,600	12,400
D*	No. 1	20,000	27,400	
	No. 2	29,000	31,000	
	No. 3	21,000	23,000	

\*A. Injections of mercury salicylate, 1 grain.

\*B. Injections of quinine bihydrochloride, 7½ grains.

\*C. Injections of novarsenobillon (neocamphenamine).

\*D. Injections of mercurochrome (in pneumonia patients).

greater the increase in the white cells. Metchnikoff stated, "The one constant element in resistance, whether innate or acquired, is phagocytosis."

If it be true that infective organisms are attacked by the phagocytes, engulfed and done away with by cellular digestion, all harmful bacteria should more or less easily be brought under this dominating influence.

Through the kindly help of Dr. B. C. Gillen, of the State Health Department, I was given the opportunity to apply this idea in the treatment of gonorrhea. This infection was chosen because of the small changes that have been made in its medical care in the last 75 or 100 years. Our medical forefathers injected silver nitrate solutions and zinc; while we irrigate with potassium permanganate or mercurochrome.

Since the 15th of September all cases of gonorrhea coming to the clinic have been treated solely by a stimulation of the white cells; in other words, exactly the same procedure that is used in the treatment of syphilis. The results that Gillen and I have seen and the rapid growth of the clinic, are a striking confirmation of the truth of the teachings of Metchnikoff.

#### Clinical Results.

Over 350 cases have been observed in the application of this plan of treatment, the consistent good results in the lessening of the exudate and the amelioration of the uncomfortable symptoms being sufficient for one to conclude that a positive control for gonorrhea has been found. About one-third of these cases were acute and have been clearing up in 5 to 6 weeks, with a showing of fewer shreds than either of us have ever seen after any other plan of treatment. Three truck drivers and one telegraph operator have had more prolonged infections because of epididymitis.

In the observation and care of this series of infections, taxi and truck drivers have been found frequently to have an extension of the organism to the vas deferens, along with an involvement of the prostate gland. This complication has also occurred in a fair number of cases, following the drinking of too much whisky.

With the infection in the prostate, little or no improvement was seen after successive injections of any one of the agents mentioned, so it became necessary to resort to massage of the gland. This procedure has proved satisfactory, when coupled with a continuation of the injections of metapen

and mercurochrome, twice a week. After the prostatic massage (one to three times on each case), laboratory determination of smears from the expressed contents have been done on 20 cases which showed clear urine with a few shreds. These cases were expected to be negative, and out of the 20 cases, 17 actually were negative for the diplococcus. Limited facilities for laboratory work have prevented a greater number of determinations.

The application of this plan has been attended, in the larger number of cases, by a consistent gain in weight, ranging from 5 to 28 pounds.

Most of the chronic infections with histories of six months' to five years' duration have been cleared up after about seven injections, the effect on the chronic conditions being rather quicker than on the acute infections. Results with women, in a rapid healing of erosions of the os, thinning of the discharge from the uterus and disappearance of the inflammation about the glands in the labia, have been very pleasing.

Our patients have been, in the main, manual laborers and usually in good physical condition. Mercurochrome, beginning with 8 or 10 cc. and gradually increasing to 15 cc. of a 1-percent solution, has given the best results, which we have attributed to its greater power for the stimulation of the white cells, but the count is not so well maintained after its use as has been found after arsphenamine. We have also stimulated the cells twice a week by alternate intramuscular injections of salicylate of mercury and bismuth.

In the last three weeks, because of the complaints of the intramuscular injections, an increasing number of injections of metapen or mercurosol have been used. The apparent clinical effects of the former are impressive and intravenous injections up to 15 cc. of a 1:1,000 solution have shown little if any reaction. Inability to induce the patients to return on the following day has so far prevented an investigation of the effect on the white cells.

The results here reported are demonstrable and may be seen any day in the venereal disease dispensary, where the writer goes every day with the same degree of confidence in the stories of improvement that will be heard and the specimens that he will see, that a chemist goes to his laboratory for routine determinations with his various reagents.

Age-Herald Bldg.

# The Relation of Titration to Hydrogen Ion Concentration\*

## A Study in Urine Analysis

By CLIFFORD MITCHELL, M.D., Chicago

**P**ARALLEL determinations have been carried on by the writer in a large number of cases. The following lists show the results in 248 analysis.

*Hydrogen ion concentration, 5.2:*—Titration acidities corresponding to this concentration have been found to be 57, 65, 30, 45, 152 (less than 5.2) 76, 58, 73, 82, 49, 105. In other words, the titration figures corresponding to a pH of 5.2 run all the way from 30 to 105. Out of 10, however, 9 are from 45 to 100, showing that low titration acidity is unusual when low pH is found.

*Hydrogen ion concentration, 5.4:*—The figures of titration acidity corresponding to this pH were as follows: 78, 77, 78, 80, 43, 30, 43, 10, 20, 32, 73, 39, 93, 37, 52, 36, 58, 54, 47, 100, 75 and 16, 24 and 65, 60, 28, 70, 77, 60, 80. Out of 28 specimens, 20 were over 40 (the range was from 10 to 100), while 6 were rather low and 2 were low.

*Hydrogen ion concentration, 5.6:*—The figures of titration acidity corresponding were 40, 28, 26, 35, 60, 20, 36, 30, 46, 36, 35, 50, 54, 60, 40, 60, 76, 45, 34, 30, 65, 48, 57, 30, 30, 30, 73, 90, 45, 70, 70. Out of 31, only 12 were over 50 degrees, while 13 were under 40.

*Hydrogen ion concentration, 5.8:*—The figures of titration acidity were as follows: 30, 50, 60, 40, 40, 25, 40, 55, 40, 15, 24, 30, 40, 36, 74, 58, 50, 42, 50, 30, 67, 55, 32, 33, 45, 58, 57, 32, 65, 30, 50, 28, 57, 42, 56, 30, 39, 41, 30. Out of 39, only 11 were over 50, while 15 were under 40.

*Hydrogen ion concentration, 6.:*—The figures of titration acidity were as follows: 42, 50, 22, 25, 55, 35, 45, 65, 70, 40. Out of 10, there were 7 over 40 and 3 under it, the range being from 22 to 70.

*Hydrogen ion concentration, 6.2:*—The figures of titration acidity were 30, 30, 32, 90, 52, 40, 60, 47, 38, 20, 50, 25, 17, 25, 35, 50, 28, 25, 33, 34, 29, 35, 56, 38, 36, 50, 32, 40, 42. Out of 29, there were 5 over 40 and 18 under it, the range being from 17 to 90.

*Hydrogen ion concentration, 6.4:*—The figures of titration acidity were 30, 45, 22, 33, 17, 26, 33, 40, 45, 53, 35, 44, 26, 49, 25, 45, 36, 34, 25, 50, 48, 40, 34, 45, 50, 33, 22, 56, 26, 17, 20, 22, 40, 47, 44. Out of 35, there were 19 under 40 and 13 over it, the range being from 17 to 56.

*Hydrogen ion concentration, 6.6:*—The figures of titration found were 28, 22, 36, 16, 30, 32, 28, 20, 44, 15, 26, 20, 18, 47, 30, 43, 26, 54, 46, 17, 36, 14, 31, 28, 15, 65, 40, 50, 20, 47, 30, 24, 50, 36, 24, 34, 36, 40, 10, 25, 32. Out of 42, there were 31 under 40 and 9 over it, the range being from 10 to 54.

*Hydrogen ion concentration, 6.8 or over:*—The figures of titration acidity found were 33, 25, 35, 35, 18, 25, 36, 30, 19, 30, 15, 25, 30, 33, 16, 12, 5, 10, 42, 28, 10, 14, 10, 3, 15, 35, 19, 40, 10, 15, 23, 23, 36, 26, 25, 46, 43, 23, 30, 10, 27, 10, 25, 13, 23, 16, 5, 30, 20, 30, 10, 15, 27, 36, 23, 26, 30, 27, 37, 42, 5, 24, 30, 37, 8, 17. Out of 66, there were 61 under 40 and 4 over it, the range being from 3 to 49.

In other words, there was no exact or definite relation between the hydrogen ion concentration and the titration acidity in the specimens examined but, in a general way, the relationship is obvious. For example, in the great majority of cases of low pH the titration acidity is high and, in the great majority of cases of high pH, the titration acidity is low. This, however, will not avail the practitioner in contact with an individual case, since the figures show it to be entirely possible for a "normal" figure of titration acidity (30) to be found in highly acid urine of pH 5.2, and a fairly high figure of titration acidity (49) to occur in obviously alkaline urine of pH 6.8.

The fact of a general relationship between the titration acidity and the hydrogen ion concentration leads me to reason that, in the case of discrepancies between the titration acidity and hydrogen ion concentration, special conditions are present, demanding investigation under circumstances of careful collection and preservation of the urine. In fact, I believe that the results of this

\*A Sequel to "The Acidity and Alkalinity of Urine," (CLIN. MED. AND SURG., Feb., 1927, p. 115).



research work, which I have carried out, justify the demands I make upon the patients who furnish specimens of urine for examination; and, further, I believe that, when these demands are complied with by the patient, the discrepancies, if any, found between the titration acidity and the hydrogen ion concentration will be few and explainable.\*

#### Pitfalls in the Clinical Determination of Urine Acidity

The difficulties which may be encountered in our efforts to express urine acidity in figures are best illustrated by narration of the particulars of the analysis of certain specimens: *Case 1.*—Young man with a pus infection of the lower urinary tract. The urine voided on rising in the morning was examined. The reaction to litmus paper of several makes was uniformly acid in all cases, and one blue paper turned bright red. Methyl red paper was also reddened.

When this urine was boiled, it became cloudy from precipitation of earthy phosphates, requiring three drops of 50-percent acetic acid to clear the upper turbid stratum; hence, the suspicion was aroused that this urine was, clinically speaking, either neutral or feebly acid, or that the excess of acidity was due to CO<sub>2</sub> driven off by heat.

The suspicion was, however, not confirmed by titration with decinormal sodium hydroxide (phenolphthalein indicator). Nine cc. of the soda solution were required to neutralize 6 cc. of urine: That is to say,

#### \*DR. MITCHELL'S DIRECTIONS FOR COLLECTING URINE

Eat and exercise as usual, but drink not to exceed four cups of any kind of liquid (tea, coffee, water, milk, soup, etc.) during the 24 hours. Take no drugs (or at least a day before beginning the collection. Do not take bicarbonate of soda, nor mineral waters.

1.—Void urine on rising, as usual, but do not begin collection until after breakfast. Urinate directly into clean fruit jar provided with a rubber ring. Save all voided from breakfast to bedtime in one jar labeled No. 1. Save all voided from bedtime to breakfast next morning in another jar labeled No. 2. Keep jars tightly closed and in coolest possible place. Provide also a freshly voided specimen after breakfast in jar labeled No. 3. Take these jars with entire 24 hours' urine at once to Dr. Clifford Mitchell, Room 1700, 25 E. Washington St., as soon as possible after 10:30 A.M.

2. If impossible to collect 24 hours' urine, furnish, instead, the 12 hours' amount by saving that voided during the evening and before retiring in one jar and that voided after going to bed and on rising in another.

3.—When only a single specimen can be furnished, choose that voided about two hours after the noonday meal, which should be eaten as dry as possible.

4.—In any case, tag or label specimens with full information as to collection, name of patient and of physician, address, etc.

Method 1 of collection is to be preferred and is imperative in obstetrical cases.

Method 3 assures limited information only, and is not advised when 1 or 2 can be carried out.

(A copy of these directions is furnished to each patient).

in figures, the acidity of this urine was ninety degrees—at least twice the figure supposed to be normal.

On the other hand, the suspicion as to the subacid condition was confirmed by determination of the hydrogen ion concentration, which turned out to be slightly over 6.2 (the normal acidity being expressed by 6; the neutral point by 7). Litmus, methyl red and phenolphthalein, then, showed a hyperacid urine; but boiling and the hydrogen ion determination (using bromocresol as an indicator) indicated a subacid urine.

The Folin oxalate method of titration showed from 75 degrees of acidity (faint pink) up to 80 degrees (plainly marked pink).

This patient was in bed on a milk diet and known to be taking urotropin several times daily.

*Case 2.*—Woman passing 510 cc. of urine in 24 hours—255 cc. in the day and 255 cc. at night—declares that the entire amount was furnished. Specific gravity of day urine, 1030; of night, 1026. The case was interesting, because the day urine turned blue litmus paper plainly red, but methyl red paper slightly yellow. The night urine turned blue litmus red and methyl red to dark red.

The day urine, with decinormal sodium hydroxide and phenolphthalein indicator, showed 45 degrees acidity; the night urine 65 degrees. The hydrogen ion concentration of the day urine was 6.6, but of that of the night, 5.6.

In this case, then, the litmus and the phenolphthalein indicators, in the case of the day urine, contradicted the methyl red and the bromocresol. There was no question about the acidity of the night urine, but what are we to say of that of the day? The most plausible explanation is that the patient, being a woman, collected the day urine in an open chamber vessel in a warm room, and that certain bacterial changes took place in it, while the night urine reached the examiner before these changes took place.

#### Clinical Suggestion

From the investigations carried on as above described, a revision of our clinical terminology is suggested by the findings of the method for determination of the hydrogen ion concentration. Clinically we should distinguish three conditions of the urine; namely, the acid condition, the subacid condition, and the alkaline condition.

Exactly neutral urines, of hydrogen ion

concentration 7, are not common, hence the recommendation by the writer that urines of pH 6 and lower should be classified as acid; higher than 6 and including 7 as subacid; and above 7 as alkaline.

The urine of men is likely to be acid, but that of women is more commonly subacid.

Urine which, on cooling, becomes cloudy and forms a deposit of amorphous urates is invariably acid; but urine, which is cloudy when first passed and clears on the addition of acetic acid, is either subacid or alkaline, according as the microscope shows absence of triple phosphate crystals or their presence. Urine which has the odor of ammonia is, of course, alkaline.

The term neutral should be discarded, since it is ambiguous. Urine may appear neutral to certain makes of litmus paper, but yet may titrate acid in considerable degrees and also be found to have a hydrogen ion concentration below 7, hence is slightly acid rather than neutral, and is, therefore, better termed subacid.

#### Conclusions

The conclusions to be drawn from these facts observed are:

1.—That, while the routine chemical methods used are sufficiently correct for solutions like normal urine, they are not all invariably trustworthy in results when urine contains in solution substances of external origin as, for example, drug prod-

ucts. The principal offenders appear to be sodium bicarbonate, milk of magnesia and alkaline mineral waters, natural or artificial.

2.—It is also possible that normal urine which has undergone certain changes, due to bacterial development, during exposure in a chamber vessel in a warm atmosphere, may yield results on analysis for acidity which are not trustworthy. Furthermore, it is entirely possible that the 24 hours' mixed urine may not reveal the abnormal acidity or alkalinity of some single specimen voided in the course of the 24 hours.

3.—Hence the final conclusion drawn is that the quantitative determination of urine acidity, in the case of ambulatory patients or those for any reason not under control, is no kindergarten pastime or technician's plaything.

4.—Moral: (a) It is a wise physician that knows his own patient; and (b) failure to derive benefit from a laboratory report is not always to be charged up to the laboratory.

5.—The cooperation of the patient in collecting the urine, according to directions, is the foundation upon which the analysis and the clinical deductions are built. Without this cooperation the analysis may become merely a routine procedure of doubtful merit and the clinical deduction from it a guess of more or less wildness.

25 East Washington St.

## The Value and Practicability of the Colloidal Mastic Test in Neurosyphilis\*

By H. W. NEWELL, M.D. and L. J. KARNOSH, M.D. Cleveland, Ohio

THE purpose of this paper is to enumerate the advantages of the colloidal mastic test of the spinal fluid; to demonstrate its feasibility for use in any small laboratory; and, finally, to discuss some practical and theoretical considerations brought out in our study of about 500 tests.

The literature is a bit confusing, owing to the fact that there is as yet no standard method of performing the test. Lange<sup>1</sup>, in 1912, originated the method of examining the spinal fluid by means of colloidal solutions. Emmanuel<sup>2</sup>, in 1915, first used the

colloidal mastic solution in examining the spinal fluid. Briefly his technic is as follows:

One and one-half cc. of a 1.25 percent sodium chloride solution is placed in the first of five tubes, and 1.0 cc. is placed in each of the remaining tubes. One-half cc. of the spinal fluid to be tested is placed in the first tube. The contents of the first tube are well mixed and 1.0 cc. is transferred to the second tube, and so on. The 1.0 cc. removed from the fourth tube is discarded and the fifth is kept as a control. One cc. of the mastic emulsion (prepared as will be described) is added to each tube. The tubes are shaken and allowed to stand for

\*From the Psychopathic Department, Cleveland City Hospital, Cleveland, Ohio.

twelve hours. Abnormal fluids give precipitation in varying degrees.

In 1917, Cutting<sup>7</sup> modified the Emmanuel technic by adding a trace of potassium carbonate to the sodium chloride solution. This tended to prevent precipitation in the control tube. He also used ten tubes instead of five, reading them as follows:

- 1.—Milky fluid, with slight precipitation.
- 2.—Distinct precipitation, with a milky supernatant fluid.
- 3.—Marked precipitation, with slight cloudiness above.
- 4.—Complete precipitation.

Smith and Lowry<sup>8</sup>, in 1920, using the Cutting modification of the Emmanuel test, after performing 268 tests coincidentally with Lange colloidal gold tests, concluded that, "The mastic reagent is simple and the interpretation is easy. Furthermore, it seems to be very accurate."

Stanton<sup>9</sup>, in 1920, reported on 100 tests paralleled by colloidal gold tests and concluded that, "The examination of fluids by both the colloidal gold and mastic tests has indicated that the information gained from the mastic test is in close agreement with that obtained from the gold test."

Keidel and Moore<sup>6</sup>, in 1921, conclude from a series of 311 cases, in which both colloidal gold and colloidal mastic tests were used, that, "There is a fairly close parallelism between the colloidal gold and the colloidal mastic tests; and that, when agreement is lacking, the mastic test seems to detect abnormalities more frequently than does the gold."

Wassermann<sup>1</sup>, in 1924, reported on 1,498 colloidal mastic tests compared with colloidal gold tests. Agreement between the two tests was found in 87.7 percent; and in the 12.3 percent showing disagreement, "the mastic test was more often positive than the gold." This author recommends the use of the mastic test in small laboratories.

Cockrill<sup>10</sup>, in 1925, reported on 400 tests, which were performed parallel with colloidal gold tests; and concluded that the mastic test was reliable and of equal value with the colloidal gold test. This writer also gives an excellent bibliography on all colloidal reactions with the spinal fluid.

#### Technic of the Test

The colloidal mastic test has been used at the Cleveland City Hospital in about 500 tests on 400 patients since November 4, 1921. Our technic is that described by Stanton<sup>9</sup>, which is essentially the same as

the Cutting modification of the Emmanuel method; and is as follows:

Ten Grams of commercial gum mastic are dissolved in 100 cc. of absolute alcohol; and the resultant cloudy fluid is filtered several times until a clear, straw-colored solution is obtained. This stock solution is kept in glass stoppered bottles at room temperature, preferably in the dark.

The emulsion is prepared with 1 cc. of the stock solution added to 9 cc. of absolute alcohol. This mixture is added, slowly and with gentle shaking, to 40 cc. of once-distilled water.

In setting up the test, 10 small tubes are employed. In the first tube is placed 1.5 cc. of a stock salt solution (99 cc. of 1.25 percent sodium chloride solution, plus 1.0 cc. of 0.5 percent carbonate solution), and in each of the remaining tubes, 1 cc. is placed. To the first tube is added 0.5 cc. of the spinal fluid to be tested. After mixing, 1.0 cc. is transferred to the second tube, then from the second to the third and so on to the tenth tube, from which 1.0 cc. is discarded. One cc. of the mastic solution is added to each tube. The tubes should stand at room temperature for at least twelve hours before reading.

For reading the curves, we have followed the scheme devised by Keidel and Moore<sup>6</sup>, in order to make them coincide with the colloidal gold readings and to make the test more sensitive. Thus we read:

0.—Normal opalescence.

- 1.—Milky fluid with no precipitation.
- 2.—Milky fluid with slight precipitation.
- 3.—Moderate precipitation.
- 4.—Almost complete precipitation.
- 5.—Complete precipitation.

The curves are classed as paretic when they read 5554321000; as tabetic when they read 3211000000; and as meningitic when they read 002453100. We believe that the accuracy of the colloidal mastic test has been demonstrated by the experience of others as well as by our own.

It may be worth while to add a few more reasons that make us feel that this is the test of choice in small laboratories. In the first place, the painfully scrupulous cleansing of the apparatus required by the colloidal gold reaction has been found unnecessary in the mastic test; in the second place, the stock solution of gum mastic is cheaper and more stable than the colloidal gold solution (we have found that a bottle of gum mastic stock solution is still reliable after standing at room temperature for one

year); and, finally, the technic is so simple that the test can be set up completely in a few minutes; and the final results are easy to read.

Our experience tends to show that complete precipitation in tubes 1, 2 and 3, means the presence of globulins predominantly; and that complete or almost complete precipitation in tubes 4, 5 and 6 only, means the presence of albumins predominantly. This is shown by the fact that in most of our cases with a paretic type of curve, in which there are only three tubes with a reading of 5, the Nonne-Apelt test, Phase I (saturated solution of ammonium sulphate), which is essentially a test for globulins, is strongly positive; while the Phase II (heat), which is essentially a test for the albumins, remains faintly opalescent, a reaction seen in most normal spinal fluids. On the other hand, in most of our cases with the meningitic type of curve, in which tubes 4 to 6 show the most precipitation, we find Phase I of the Nonne-Apelt Test very faintly positive and Phase II very strongly positive.

#### Interpretation of Results

We had one case of general paresis which developed pneumococcus meningitis, and whose spinal fluid showed this curve: 5544522110, which is interpreted as the resultant of two curves, a paretic and a meningitic. This experience, along with the fact that, in most of our cases of general paresis whose cell count was over 20 per cmm., there were five or six tubes with a reading of 5; while in the case with cell counts under 20 per cmm. there were only three or four tubes with a reading of 5, leads us to believe that, in the first group of cases, there is some meningeal irritation, in addition to the parenchymatous degeneration seen in the second group of cases. In

the last 130 cases of general paresis in our series, 106 or 81.5 percent supported the conclusions mentioned above.

Experience with several cases of normal spinal fluid, in which there was fresh blood, showed that, after immediately centrifuging the fluid, the supernatant liquid showed normal qualitative protein and colloidal mastic tests. This suggests that a fluid made bloody by faulty technic may still be studied for its protein content.

Three cases of nonlentic meningitis, where the diagnosis was confirmed by autopsy, showed a meningitic curve in six hours, but in twelve hours the curve was of a paretic type. This suggests that frequent readings may be of value in interpreting the colloidal mastic test.

#### Conclusions

- 1.—The colloidal mastic test is as accurate and reliable as the colloidal gold test.
- 2.—This test is cheap, easy to perform and simple to interpret.
- 3.—It is a valuable and feasible laboratory method, which can easily be used in any institution or private office.

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# Surgical Seminar

Conducted by GUSTAVUS M. BLECH, M.D.

(Note: The Seminar is devoted entirely to the practical interests of surgeons. Problems and their discussions are solicited. Contributors must give their names, but whenever desired these will not be published. Questions for this department should not exceed fifty words. Address all communications for the Seminar to Dr. G. M. Blech, 108 North State Street, Chicago.)

## Surgical Diagnosis (Continued)

In the examination of the blood it is a good plan to follow a certain routine. We begin by a study of the fresh blood. This is obtained from the finger tip or lobe of an ear by simple stab-puncture with a sterile needle, the site having been rubbed with pure alcohol, which has been allowed to dry. The first drop is wiped away and the second drop is carefully placed on a slide and covered with a cover glass. The arrangement of the red cells and their morphology is now studied under the microscope. Likewise the white cells can be studied, small lymphocytes, neutrophile leucocytes and eosinophile leucocytes being differentiated without great difficulty in the fresh specimen.

Dried and stained specimens are not handled by us, but are sent to a competent laboratory worker, whose report is checked against the clinical phenomena.

While the hemoglobin percentage, the color index and the appearance of the red cells are of great importance in the differentiation of the anemias, these are of secondary importance to the surgeon. The white cells, on the other hand, are of great importance, diagnostically and even prognostically. An existing leucocytosis, *per se*, has scarcely any diagnostic value, except when it serves to aid us in the interpretation of certain symptoms.

We know that the normal ratio of white blood corpuscles fluctuates between 1:500 and 1:800 red blood cells. To this must be added that leucocytosis is physiologic during the process of digestion. Leucocytosis is present in a number of acute general infections of interest to the internist (pneumonia, pleuritis, etc.) and as inflammatory leucocytosis of interest to the surgeon (appendicitis, peritonitis, erysipelas, lymphadenitis, etc.). Leucocytosis is also present in certain cachexias. From the

standpoint of differential diagnosis, the surgeon should know that an enormous increase of the white cells is observed in leukemia.

The *blood Wassermann reaction* is mentioned for the sake of completeness. While the technic of this test is not difficult to learn, we deem it advisable to refer all such work to specialistically trained laboratory workers. In doubtful cases we send the blood to two or three laboratories and check their reports against each other.

The Wassermann test is omitted in emergency cases only. The reason for this omission is obvious. In all dissections the surgeon should avoid undue haste when using a sharp instrument (scalpel, needles, syringe) to obviate injuring his own person or that of an assistant and opening the way to infection. The fear that syphilis will affect the outcome of an operation, with particular reference to healing by primary intention, is not well grounded.

Under certain circumstances the surgeon must have recourse to a *tuberculin reaction* for diagnostic purposes. Four methods are available:

- 1.—The subcutaneous method, after Koch. Old tuberculin is injected subcutaneously in the deltoid region, beginning with 0.25 milligram, increasing the dose gradually up to 10 milligrams, at intervals of one to three days. Increase of the body temperature after any one of the injections indicates the presence of the suspected virus in the system.

- 2.—v. Pirquet's cutaneous vaccination is performed in a manner similar to vaccination against variola with a preparation of old tuberculin, 2.5; physiologic saline solution, 5.0; and 5-percent phenol-glycerine, 2.5. A second scarification is made for purpose of control.

A positive reaction takes place within two days, with the appearance of a hyperemic papule about as large as a 25-cent piece, surrounded by a bright red zone.

This test is absolutely conclusive in children but rather doubtful, diagnostically, in adults.

- 3.—Calmette's ophthalmic reaction, consists of placing one drop of a one-percent solution of old tuberculin in the eye, which, in the presence of tuberculosis, will result



in the appearance of a pronounced conjunctivitis.

4.—Moro's reaction of tuberculin ointment. Rubbing a bit of this ointment, about the size of a pea, into the unbroken skin produces at the site of the inunction, as a positive reaction, a nodular, efflorescence. Moro differentiates three reactions: Weak reaction, if individual, isolated nodules appear and soon disappear within one or two days; medium reaction, when numerous nodules appear within 24 hours, are surrounded by a red areola and remain visible for several days; and, strong reaction, when a similar but more pronounced reaction appears after a few hours and remains in evidence for some time.

The objection to the Koch reaction is that it results in fever and general systemic disturbance. Calmette's reaction leads to an unpleasant, if not painful, eye inflammation. Between Moro's and von Pirquet's tests, the latter is the more reliable and is therefore the test we employ as a routine.

No matter what method be employed, a positive reaction must be properly interpreted, because a latent tuberculosis yields the same reaction as an active form. We emphasize again that the tests are almost pathognomonic in children but rather uncertain in adults. It follows that the test must be interpreted solely in connection with clinical phenomena.

In a child, however, in the presence of lesions of the glands or bones, a positive tuberculin reaction leads us invariably to diagnose tuberculosis of these structures.

In about fifty percent of cases of *echinococcus* disease, a positive complement fixation test can be secured. As the technic of this test follows the laws of the Wassermann reaction, we prefer to employ specialistic aid. It must not be forgotten that, in the presence of taenia, syphilis and leprosy, a reaction against *echinococcus* antigen takes place. In two out of five cases seen by the writer, when the preoperative diagnosis of *echinococcus* infection was positively confirmed by operation, the reaction failed to develop.

(To be Continued)

#### Discussion and Solution of Problem No. 4

*Recapitulation* (see April issue, p. 292). A little girl aged about four, with no previous history bearing on the case and in normal physical and mental condition, accidentally swallowed some lye with a resultant stricture of the esophagus. The

patient is seen within a few hours after the accident.

The requirement called for the therapy to be inaugurated after the first visit and for the next two days. The prognosis, too, is required.

Discussion by Dr. J. A. Larrabee,  
Barnard, Mo.

Although very much interested in the problems and discussions of the Surgical Seminar, I have so far failed to take an active part solely because I do not consider myself surgeon enough to express opinions. If I break my silence it is due to the fact that I have had cases similar to the one described in Problem No. 4. At least one of them was very severe in intensity.

In such cases I have used diluted acetic acid for concentration which I believe safe in each case. When this chemical is not easily available I make use of full strength household vinegar.

This method of treatment has relieved pain, and one is then enabled to combat shock and fortify the general system.

Beginning with the second or third day I employ olive oil and bismuth.

This is the appropriate time to obtain a good survey of the pathologic situation by means of the roentgen rays, after which, if thought safe, the esophageal bougie may be resorted to, though I hardly believe this a safe procedure at this time.

Discussion by Dr. I. Arthur Edison,  
Chicago, Ill.

This problem is of especial interest to me because I have been fortunate or unfortunate enough to see several accidents of the character stated in the problem.

In the following discussion I not only do not lay claim to originality, but lean almost entirely on the teachings of men who are regarded as medical authorities.

In a case of ulceration and stricture of the esophagus due to swallowing a caustic poison we encounter, in a small child, a serious condition, since the structures are small and delicate. The resultant stricture interferes with nutrition and we soon have a general picture of emaciation and anemia.

The first treatment is antidotal and palliative. If a man like Lieblein admits that, in the majority of instances, dilatation of the esophagus will be necessary and that this procedure must be instituted only after the ulcer has cicatrized, no mechanical treatment can be undertaken before the expiration of three weeks, and possibly much later.

Dilatation by bougies, even then, is a serious matter, as perforation is likely to occur even after cicatrization. To avoid this the bougie must be guided. The literature contains all sorts of suggestions how to "guide" an esophageal bougie, but all are far from simple, requiring skill and dexterity.

Chevalier Jackson recommends dilatation under direct vision by the esophagoscope, but how many general practitioners or even surgeons possess such an instrument, to say nothing of the special skill needed for its proper use. Of course gastrostomy and retrograde dilatation suggest themselves as simpler methods, but no matter how simple they may be to some, they are major operative procedures even in the hands of general surgeons.

The prognosis in this case is uncertain, depending on the degree of the stricture and the progress of the disease, with particular reference to the possibility of administering liquid (bland) food through the natural channel.

#### Editorial Comment

I am very much disappointed by the fact that none of our regular contributors have been heard from on this important problem.

As regards Dr. Larrabee, in my opinion he has the necessary qualifications always to take an active part in our deliberations, and I hope that he will be heard from quite often in the future. Dr. Edison has sent in a very interesting discussion.

What possible object could I have had in presenting a problem which, from a diagnostic point of view, presents no particular difficulties? A child having swallowed lye, immediately shows symptoms which leave no doubt as regards the effect on the esophageal structures. The question of therapy becomes, however, a burning one.

Dr. Edison has quoted what is regarded as the present day authoritative teachings, but I am entirely in disagreement with them, which explains why I have specifically mentioned the therapy for the second and third days following the accident of cauterization of the esophagus, in the requirement of the problem.

Let me begin this comment by taking up the last requirement—the prognosis—first.

It must not be forgotten that about twenty percent of those unfortunates who have taken large doses of caustics die at an early period. Whether death is due to the poison entering the air passages or the cauterization progressing to involve the

mediastinum, pleura, lung or blood vessels is only of academic interest.

The cases which are not immediately or almost immediately fatal present, as was already pointed out by Dr. Edison, a serious problem. Even when the stricture is not complete, so that liquid food can still pass, we have a case where the stricture may require attention for many years since dilatation is seldom followed by the desired results, the constriction returning more or less extensively after dilatation.

There is no doubt that Roentgenoscopy and esophagoscopy have made such rapid strides forward that one can obtain a satisfactory idea of the extent of a stricture without any bougie, but for our purposes the bougie, nevertheless, remains a most valuable instrument.

Up to a few years ago it was generally taught that to bougie a strictured esophagus before cicatrization was a serious error, with the result that, outside of gastrostomy, our therapy was virtually nil. The late application of the bougie was a tedious method, which had to be used in very many instances throughout the entire life of the patient, at more or less infrequent and irregular intervals, to be sure, but used nevertheless.

Today we consider such expectant treatment erroneous, and we have, in the very method against which we have been warned, a means of preventing the development of stricture so that dilatation will accomplish the desired result in a comparatively short period.

I regret that my own, personal observation is restricted to just one case. The details of the case are given in the problem. I started bouginage the second day after the accident and repeated it the following day and after that for several months, with the most astonishing results. The child is now over six years old and eats and drinks without any trouble and is developing physically and mentally as all other normal children of her age.

Other observers who have preceded me have had similar good results. I have had no experience in adults. Clairmont, chief of the surgical clinic in Zurich, Switzerland, has observed good results from early bouginage in the case of a man, sixty years of age.

Before concluding this comment I desire to impress our readers with one great fact, and that is that there is bouginage and bouginage. Most of the esophageal sounds

sold in instrument stores are really dangerous instruments and only the *cylindrical* bougies can be employed with safety. The next thing is not to try at first the smallest sizes, but to utilize, for purposes of determining the caliber of the stricture, medium sized instruments. Last, the introduction of such an instrument must be performed with exquisite gentleness. Not the least force, not the least pressure, must be used if one desires to prevent a calamity.

It is well to administer a suitable dose of morphine and atropine half an hour before the introduction of the instrument, and then the superlative of the gentleness is the LAW.

This is not the time and place to discuss details of technic, but I shall be glad to take this up in detail at any time our readers so desire.

I embrace the opportunity to thank the discussants and to renew my appeal for active cooperation. If the thousands of readers of CLINICAL MEDICINE AND SURGERY should see fit to send me their contributions, I will, of course, be unable, to handle more than half a dozen, but I will find ways and means to tabulate the discussions and this may develop the Seminar into something that all sincere and enthusiastic readers will welcome.

#### Problem No. 6

A woman, aged 50, mother of several children, all of whom she had nursed, consults you for a nodular growth in one mamma, which one physician had pro-

nounced carcinoma, recommending amputation of the affected breast. This, of course, frightened the patient, and she seeks your counsel.

In taking her history we learn nothing that may have any bearing on the case. Her menstrual history shows that she has entered the climacterium. Heart, lungs, abdomen and nervous system are normal. The urine shows neither albumin nor sugar.

Examination of the mamma reveals that the nodular growth which attracted the attention of the patient is only one of a number of similar, but more deeply located nodules, about the size of a bean, together with several cord-like strands of hard tissue running along the direction of the acini. The other mamma shows an almost identical condition. Both breasts are scarcely sensitive to pressure. The nodule which the patient had noticed herself appears slightly sensitive to pressure.

She knows of no carcinoma in her immediate family, though an uncle was supposed to have died following an operation for cancer of the stomach.

The patient states that she has been in good health, that she has a good appetite. With a height of approximately 65 inches, she weighs 195 pounds. There has been no loss of weight. She sleeps well and awakens refreshed. Only "hot flashes" and occasional palpitation of the heart embarrass her, but these phenomena do not interfere with her household duties.

*Requirement:* Diagnosis of the growths in the mammae and their treatment.

# Clinical Notes and Practical Suggestions

## Besredka's Method of Producing General Immunity by Local Immunization\*

(Vaccines by Mouth)

THE general assumption today is that immunity against an infection is the result of the presence of specific antibodies in the blood. This theory cannot always be proved. The antibodies which are present in typhoid fever are not sufficient to explain the immunity. Moreover, in anthrax no antibodies are found, at least at the beginning.

Recently Besredka, of the Pasteur Institute, Paris, proved by a series of experiments that there exists a kind of immunity which is not in the least due to antibodies. It is of local origin and is produced in the organ which becomes infected.

The guinea pig is difficult to immunize against anthrax. Vaccination, when carried out subcutaneously, may sometimes produce immunity against the vaccine but not against the living virus. Intraperitoneal vaccination seems to be more successful, as evidenced by the fact that the subsequent injections of repeated large doses of anthrax bacilli into the peritoneal cavity do not affect the animal. Nevertheless, even in this case, the animal is not immunized, for it is only necessary to introduce the minimum lethal doses of vaccine subcutaneously to cause death. The explanation is that, in the guinea pig, the only organ susceptible to anthrax is the skin, so that when the bacilli are introduced into the peritoneal cavity they are quickly destroyed by phagocytosis. The same is true with the vaccine. Neither injury nor protection can be afforded by introduction of the virus or vaccine intraperitoneally.

If, however, the vaccine is injected into the skin (*intradermally*, not *hypodermically*) the animal will in every case become immune against anthrax, for, since the anthrax infection takes root in the skin, immunization can be produced only through

the same organ. This phenomenon is not accompanied by the appearance of antibodies in the blood.

The same results are obtained with smallpox vaccination. The lymph applied under the skin affords protection, but when introduced intraperitoneally no immunity results. In smallpox, antibodies appear in conjunction with the immunity, but the latter remains long after the former have vanished from the blood. Thus, in anthrax and in smallpox, the production of immunity is a local phenomenon which is not associated with the formation of antibodies. The author calls it "*local immunization*", meaning a general immunization of local origin.

The problem is more complicated when the microorganism seemingly has no predilection for a special organ and is capable of invading various parts of the body. This is the case with the *Bacterium dysenteriae*, *B. typhosus* and *paratyphosus* and the *Spirillum cholerae*. A rabbit can be inoculated with these viruses subcutaneously, intraviscerally, intravenously and in other ways, but not orally. The latter route is better protected against infection in the animal than in man.

Nevertheless, in the rabbit, as well as in the human being, these organisms display a particular affinity for the intestines. Thus, Shiga's bacillus (*B. dysenteriae*) injected into the ear-vein or, what is still more surprising, under the skin of a rabbit can soon be found in the mucous membrane of the intestines. On their way to the

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Besredka, A.: Local Immunity, *Presse Medicale*, No. 56, July 12, 1924.  
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intestines many of the microorganisms may have been destroyed, but the few which finally arrive remain and proliferate

Cholera vibrios, even if injected into the peritoneum, will reach the intestines in a short time, through the circulation. When injected subcutaneously the vibrios can be found in the intestines as early as 6 hours after inoculation. Only Shiga's bacilli are able to penetrate the intestinal submucous layer of the rabbit (thanks to the desquamating action of their endotoxins); the typhoid and cholera viruses cannot do so. The rabbit can ingest large quantities of the latter organisms by mouth without injury. If, however, bile is administered prior to the oral administration of the bacteria, the desquamatory action of the bile upon the intestinal mucous membrane renders possible the entrenchment of the microorganisms and the animal displays all the characteristic symptoms of cholera and typhus. This opens a way to local immunization, since it is evidently the intestines which must be immunized against these infections.

Upon introducing dead typhoid, paratyphoid, or Shiga's bacilli, or cholera vibrios, by mouth, after first administering bile, Besredka attained immunization of animals against the corresponding infections. Thus, oral vaccination became a possibility. As Besredka states, Nicolle has shown that man can be also vaccinated by mouth against Mediterranean fever.

Since vaccinotherapy, as recommended by Wright, is mostly successful in affections localized in the skin, Besredka thinks that in these cases also local immunization is achieved. If this is true, then the most rational method of vaccination is to inject the vaccine intracutaneously instead of subcutaneously; i.e., in infections of the skin, cutaneous immunization is indicated. He elaborates a new method for skin immunization consisting of the application to the skin (or to the mucous membrane if necessary) of a dressing impregnated with the vaccine. In some cases this procedure yields better results than injections, particularly if a large area is covered with the dressing.

The same immunization experiments were applied to staphylococcal and streptococcal infections. These two microorganisms, unlike anthrax virus, do not possess an exclusive affinity for the skin, but exhibit a certain predilection for it. Besredka, therefore, tried to induce immunity against these

organisms by immunizing the skin. Despite the difficulties involved in the production of infections in animals with human strains of staphylococci and streptococci, his attempts were successful to a large extent, when the vaccine was introduced into the skin.

Besredka found that when a broth culture of staphylococci is filtered, the filtrate appears to contain a substance which inhibits the growth of these microorganisms, although it does not affect other cocci. Another important property of this substance is that it is not toxic. When the filtrate is injected into the skin or applied to it in the form of a dressing, it is no less effective than the vaccine containing dead staphylococci. In this instance, as well as in those where a vaccine containing the organism itself is used, immunity is not accompanied by the production of antibodies. The same results were obtained with streptococci as with staphylococci. The filtrate of a streptococcal culture when applied to the skin in the form of dressing is particularly effective in producing immunity against subcutaneous infections with the same organism.

Since the publication of these experiments, attempts have been made in various countries to check epidemics in man and animals by local immunization, and also to employ it as a form of treatment. Besredka, in his most recent publication, reports a series of cases where local immunization was tried as a method of prophylaxis and treatment. In 1924, during an epidemic of typhoid fever in Lodz (Poland), 20,867 persons, living in 151 tenement houses where cases of infection occurred, were subjected to oral vaccination by Besredka's method. Of these, 49 subsequently became infected—6 after a lapse of one year, thus reducing the number of those not protected by the induced immunization to 43, or 0.15 percent.

At the same time, of 73,494 unvaccinated individuals living under the same conditions, 993 became sick, or 1.35 percent, which is 9 times more. Furthermore, of the first group, 3,051 were not vaccinated, due to absence at the time of vaccination, and 47 of the above 49 cases of infection belong to this nonvaccinated group.

In Bengal and Madras (India) a part of the prison population was vaccinated against bacillus dysenteriae, while the other portion remained unvaccinated, thereby serving as controls. Of the first group 2.88



percent in one section and 2.16 percent in another became infected; while of the unvaccinated, the corresponding proportions of those who subsequently suffered from infection were 5.2 and 4.46 percent respectively; i.e., twice as high a morbidity.

In November, 1925, an epidemic of cholera occurred in Pondicherry (India), which, although of only two weeks' duration, claimed 1,039 victims, of which 831 succumbed. At the beginning of the epidemic, 5,200 persons were vaccinated (*per os*) and only two of these died.

In Nisch (Siberia), 117 patients suffering from dysentery were treated by oral vaccination and only 5 were uninfluenced by this treatment; the rest recovered after 25 days of treatment.

Many cases of successful use of Besredka's method of vaccination in epidemics of bacillus dysenteriae and typhoid fever, in France, have also been reported. In addition, cutaneous immunization has been widely used as a preventive method. In 1924 and 1925 it was employed extensively against anthrax by the French army in Syria where 16,000 horses and mules were vaccinated. It was also used in Morocco in 1924 where 20,000 vaccinations were made during an epizootic. In both instances the method proved to be very effective, as immunity appeared rapidly.

There have been reported numerous cases of successful treatment in man by immunization of the skin and mucous membrane. Among them are cases of furunculosis, anthrax, panaris (felon), mastitis, pyodermitis, impetigo (usually cured in 10 days), blepharitis, phlegmon, osteomyelitis, purulent pleurisy, ulcerations, septic endometritis, puerperal fever, etc.

The usual method of vaccinating the skin and mucous membrane consists of the application of a dressing impregnated with the filtrate of the corresponding virus. In uterine infections an intra-uterine dressing or plug is used. Cystitis, pyelonephritis, etc., are treated by instillation of the virus filtrate. For immunization of the intestines by mouth Besredka's vaccines are administered, together with bile ("Bilivaccin"), the latter serving for "sensibilization" of the mucous membrane.

According to Besredka, local immunization can also be of great value in surgery; preoperative and, particularly, postoperative irrigation with bacterial filtrates would prevent contamination by producing immunity.

G. R.

### ULTRAVIOLET RAYS IN NASAL DISEASES\*

Ultraviolet irradiations, if properly used, will give more relief in nasal conditions than will any other therapeutic measure. In inflammatory tumescence of the turbinates, as found in acute rhinitis and hay-fever and after operations, the results are excellent.

Because these patients are very sensitive to any foreign body introduced into the nose, the application of the rays by means of quartz rods is distressing to them. It is, moreover, unsatisfactory, as much time and effort are required to reach all the affected structures with the rays by this method. The rods are efficient when the germicidal effects of the rays from the Kromayer lamp are to be used by pressing the quartz against the tissues.



Dr. Vernon's Nasal Speculum for Ultraviolet Irradiation.

Dr. Vernon has devised a speculum by means of which it is possible to flood the interior of the nose with ultraviolet rays, without introducing anything deep into the nostrils. It has an attachment for holding the alae nasi out of the way during treatment. To get best results, serious obstructions in the nose must be corrected surgically before giving the irradiations.

Best results are obtained by raying for 5 minutes at the first sitting, increasing the treatment by 5 minutes every other day, up to 15 or 20 minutes. This may seem severe, but the free blood supply of the nasal mucous membrane seems to take care of the ultraviolet energy in some manner.

\*Abstract of a lecture by Dr. F. G. Vernon, Merrill, Ia., before the Physiotherapeutic Lecture Clinic, Jan. 11, 1927.

The doctor has tried this treatment in atrophic rhinitis, or ozena, but results are not satisfactory.

Failure in treating hay-fever is due to obstructions in the nose. If we can get rid of those obstructions without cutting anything away (as we frequently can do by means of ultraviolet irradiations), such a method seems better than surgery.

G. B. L.

#### MEDICAL TREATMENT OF APPENDICITIS

Appendicitis has, within the past two decades, become so prevalent as to have occasioned more laparotomies than all other abdominal surgical ailments combined, with the possible exception of gall-stones or salpingitis.

Strange as it may seem, our textbooks, almost uniformly, say no more upon the subject of its treatment than to refer it at once to the surgeon for operation. Most of them offer no suggestion for any medical treatment whatever, and yet there are in remote districts, hundreds of cases of the disease, many of them of the severest type, that go through all of its stages with complete recovery.

Personally, I have not had an appendectomy in my practice during the past fifteen years, although I have treated upwards of fifty cases during that time, nor have I had a single death from that ailment, nor, so far as I know, one in which it was a complication. Neither do I know of a death from appendicitis where the knife was not used. I speak only of my own observations in this and I am not saying that there are not cases in which operation is the most rational and probably the best treatment, but I do believe that not all cases are of necessity surgical and that many of them are best treated without operation.

Neither have I seen a case in which I would hesitate to give a mild purgative, which always relieves, after the first two or three bowel movements. I then give thorough intestinal cleansing, followed by a course of salol or the sulphocarbolates, with echinacea and hydrastis in a glycerin mixture, and the treatment is complete, except in cases where absorption of toxins renders one of the vaccines necessary, usually that combining the colon bacillus, and perhaps that of Eberth.

With so large a percentage of recoveries without surgical interference, wherein is

medical treatment contraindicated, especially when we know that all of the symptoms yield readily to a rational administration of indicated remedies?

LEWIS W. SPRADLING,

Athens, Tenn.

[The treatment of appendicitis depends largely upon where the patient is when the disease develops. Those who live in remote districts, far from hospital facilities and competent surgical service, must put up with such treatment as is available, and it would surprise many ultrascientific physicians to realize what a high percentage of them recover.

This does not, however, mean that, if the best class of surgical treatment is available, the patient should be denied its benefits.

Appendicitis is a *surgical disease*, notwithstanding the fact that many cases of the catarrhal form do recover under medical treatment. Sooner or later, in most cases, an operation becomes necessary. Dr. Spradling has been fortunate. If he should encounter a severe suppurative or gangrenous case he will have to sign a death certificate unless surgical aid is at hand, or unless the abscess ruptures through the bowel, as we have seen it do on one occasion.

A poorly performed operation is frequently worse than none, but if a good surgeon and a good hospital are within reach and the patient is in a condition to be removed the necessary distance, we strongly feel that an appendectomy is indicated.

In other circumstances, medical treatment should certainly not be neglected, for much can be done to relieve the patient's distress and favor his restoration to health.

Surgical intervention is not the *only* treatment for appendicitis by any means, but, if conditions are reasonably propitious, we believe it is the *best* treatment.—Ed.]

#### RELATION OF SYPHILIS TO INTERNAL MEDICINE\*

Perhaps the most important consideration in reference to syphilis and the various manifestations as observed by the internist is the time and mode of the distribution of the organism. The older method of division or classification into the primary, secondary and tertiary stages, while not so accurate as

\*Synopsis of a lecture before the Chicago Medical Society, Mar. 9, 1927. From *Bulletin C.M.S.*

formerly conceived, is still of practical service. From the time of infection to the appearance of the primary lesion (the period of incubation), the infection is usually strictly local, although regional or more distant infection may occur. The appearance of the chancre, the first evidence of local resistance to the infection, marks the end of the incubation period, and, probably in most instances, the local type of the infection.

At or very soon after the appearance of the primary lesion the infection is spread by the lymphatics to the neighboring glands and after a varying period, probably a few days, enters the blood stream and is distributed to every organ and structure in the body. With this systemic infection the secondary manifestations appear, for which the syphilologists are especially consulted; less frequently the internist. Certain features or symptoms may occur in this stage and be sufficiently pronounced to induce the patient to consult a physician, as an arthritis, a slight arrhythmia, a bronchitis, a jaundice or headache. Perhaps the ocular manifestations are first observed by an oculist, or the mouth and throat involvement by a throat specialist.

With the subsidence or disappearance of the secondaries, particularly the cutaneous lesions, the external visible signs of the systemic infection, and after a variable period of weeks, months or years, the far more serious manifestations appear. Not every infected individual will develop symptoms and signs of disease, but with the widespread, systemic infection the chances are far greater that some particular internal organ or structure, sooner or later, will manifest functional or organic evidence of disease. How some few escape and others develop some serious, too often fatal, disease can be explained only on the basis of virulency of the organism and immunity, as in other infectious diseases.

It is a curious fact, sufficiently substantiated by clinical observation, that certain internal organs or structures are prone to involvement to the exclusion of all others. Perhaps selective election or previous organic changes are the determining factors. In nearly every definition of syphilis there is included the idea that the infection "may attack any tissue or organ of the body," and "is characterized by symptoms referable to the part attacked".

The marked tendency for syphilis to involve certain structures is amply confirmed by the daily experience of every

practitioner. An attempt was made, by a study of hospital records, to arrive at some comparative estimate of the various syphilitic internal diseases, but this has not been possible. Cerebrospinal, cardiovascular and hepatic diseases are particularly frequent, especially when compared with the osseous, cutaneous, gastrointestinal, pulmonary and genitourinary involvements, as observed by the internist.

It is sufficient to remember, in medical practice, accepting the statistics of Landouzy, that 15 to 28 percent of the population is syphilitic, and that a large proportion of this number present clinical evidence directly due to the specific infection.

FREDERICK TICE,

Chicago, Ill.

## CHEMOTHERAPY OF TUBERCULOSIS

One of the fundamentals of chemotherapy is that the drug destroys the invading organism without injury to the cells of the body. In certain protozoan infections, the habitat of the infecting organism seems to be the circulating blood-stream, and the object therefore is to get the drug into the blood-stream, which is comparatively easy.

In tuberculosis the bacteria are largely removed from the blood-stream, thus complicating the problem of chemotherapy; second, the tubercle is avascular; and, third, the bacilli are frequently surrounded by dead cells. While it is very easy to see how each of these factors may be a hindrance in chemotherapy, surprisingly enough, they may also be of direct assistance. Avascularity of a tubercle may interfere with the entrance of a drug, but it is conceivable also that the chemical agent, having once entered it, may accumulate there, and this is exactly what happens when calcium salts enter the tubercle, with resultant calcification. It is nature's attempt at a chemotherapeutic agent in tuberculosis calcification. Further, the presence of dead cells may, in certain cases, destroy the drug; it is also possible that they may activate it by the liberation of enzymes. The specific tuberculocide may be crystalloid. It need not necessarily possess fat-solubility to penetrate the tubercle.

It is natural, since the vital dyes penetrate the tubercle easily, to regard them as possible therapeutic agents in tuberculosis. Although the Germans report favorable results, DeWitt did not find any culture effects from methylene blue or from other

dye in infected tuberculous guinea-pigs. The therapeutic value of copper has also been studied extensively by the Germans, who report favorable results, but here again the experiments of American workers are in disagreement. Gold seems to hold forth promise, its molecule having been modified in many ways. It has been added to cantharidine as a vehicle; then, because this was found to be toxic, it was further modified by adding ethylene diamine, giving cantharidyl-ethylene-diamine-aurous-cyanide. Although this preparation has yielded results in the hands of some workers it has failed in others. Sodium cinnamate is an example of a drug that exercises a definite inhibitory action against the tubercle bacillus, but does not possess a tuberculocidal action.\*

GEORGE J. SCHULZ,

Washington, D. C.

#### BROKEN BONES AND PARATHYROID

On the 8th of October, 1926, I was struck by an automobile and both bones of the left leg were broken below the knee. The quadriceps tendon held the parts in place when the leg was extended. I was taken to the hospital where a plaster cast was placed on the leg and the doctors were kind enough to inform me that I would not get out for six months and then I would not walk. I told them that I would treat them to a surprise.

It is generally believed that broken bones in a person of my age (85) do not unite, and the theory is that the bones contain too great a percent of mineral matter. My idea was that there is another factor generally considered, and that is that, in an old person, there is very little colloid calcium in the blood from which the bones are to draw to get them to heal. Knowing this, and knowing also that the parathyroid glands regulate the calcium level, I decided to take a desiccated preparation of this gland.

One function of the parathyroids is to collect the calcium from our food and drink and pass it into the blood as colloid calcium. The spleen does a very little, but this gland is more concerned with the iron and other metals. As to why there is little lime in the blood of old people we may say that, as people pass middle life, the activity of all these glands begins to diminish. Some show this by becoming more obese.

\*Weaver, George H.; Brown, Lawrason; Preble, Robert B.; Sippy, Bertram W.; and Brown, Ralph C. General Medicine. 1922, Vol. 1.

I sent for my bottle of 1/10 grain tablets of desiccated sheep parathyroids and took one three times a day. The result was that at the end of the sixth week I stood on the floor and took a few steps; at the end of the seventh week I walked to the operating room, had the cast taken off and walked back to my room without support (but as the leg was weak I had another cast put on the next day); at the end of the eighth week I dressed and walked out of the hospital, my only support being a cane. Since that time I have been walking from four to twenty blocks a day.

G. H. FRENCH,

Herrin, Ill.

#### BABY'S DAILY TIME CARD Tenth, Eleventh and Twelfth Month

The baby of ten months has the fun of eating a number of new things. By this time he should be an "all night sleeper" and his day should go something like this:

- |           |  |
|-----------|--|
| 6:00 a.m. | Boiled whole milk.<br>Leave alone in crib to sleep or play.  |
| 9:15      | Plain cod-liver oil, then orange juice or tomato juice.  |
| 9:30      | Bath. Before bath let baby kick and play freely on bed a few minutes without clothes.                              |
| 10:00     | Breakfast: Cooked cereal with boiled whole milk; crisp bacon occasionally.   |
| 10:20     | Out of doors till dinner. Sun bath and long nap in sun. Play.  |
| 2:00 p.m. | Dinner: Egg, green vegetable or vegetable soup; rice or baked potato; boiled whole milk.                           |
| 2:20      | Out of doors as long as season permits, in sun except on very hot days. Short nap. Drink of water after nap. Play. |
| 5:15      | Undress for night. Before putting on baby's night clothes let him kick and play freely on bed a few minutes.       |
| 5:45      | Plain cod-liver oil, then orange juice or tomato juice.  |
| 6:00      | Supper: Cereal; zweiback or dry toast; pulp of baked apple, apple sauce, or prune pulp; boiled whole milk.         |
| 6:30      | Bed, lights out, windows open.   |
| 10:00     | Boiled whole milk (give up this feeding before end of tenth month.)  |



### Training the Ten to Twelve Months Old Baby

Put the baby to bed at half past 6 in the evening to sleep till morning. He should still have his regular long morning nap.

Give up the 10 p.m. feeding about this time. Finish weaning in the tenth month if it is not already done.

When the baby has been weaned feed him from a cup rather than a bottle. Teach him to help hold the cup and the spoon.

Give the baby a drink of milk at 6 a.m. and three regular meals but no food between meals, and no sweets in any form. If he is never allowed to taste candy or ice cream he will not miss them. Do not give him tastes from the family table.

Keep on training for regular bowel movements and regular passing of water.

Let the baby learn by himself to stand and walk; do not try to teach him this. Let him pull himself up in a play pen or in a crib with high sides. Give him simple toys, too large to go in his mouth. Let him find out for himself how to get back toys that he has dropped.

Keep on giving sun baths.

### Baby's Diet

Give 1 quart of boiled whole milk a day, in four feedings, 7 to 8 ounces at a time.

Give 3 to 5 tablespoonfuls of well-cooked cereal twice a day.

Give egg daily, for breakfast or dinner. Keep on giving green vegetables.

Give dry toast, zweiback, rice, or baked old potatoes, baked-apple pulp, apple sauce, prune pulp, crisp bacon, and milk soups. Add one at a time.

Offer the baby boiled water, not sweetened, at least twice a day—oftener in summer.

CHILDREN'S BUREAU,

U. S. Department of Labor.

### CHEMISTRY AT THE UNIVERSITY OF ILLINOIS

One of the most important fundamental sciences at the basis of medicine is chemistry, and much valuable and significant work along this line is being done at the University of Illinois, Urbana.

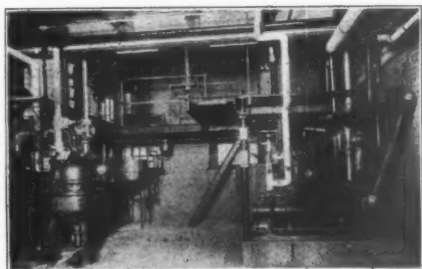
The chemical department is a very active one, with 90 teachers and 2905 students enrolled in all courses. This includes some duplications as there are students who are taking two or more courses in chemistry. This is a surprising development of a de-



The Chemical Laboratory (Completed 1916)

partment which was begun in 1868, with a laboratory in the basement of the original University Building, having an equipment which cost \$978.

The equipment for work in industrial and physical chemistry is very complete and elaborate. The department of sanitary chemistry makes water analyses for the State Board of Health and for private persons all over Illinois. This work is fascinating but not of great practical interest to physicians.



A corner of the Chemical Engineering Laboratory

We hear and read the nonchalant way in which chemists speak of taking out a hydroxyl group here and putting in an ammonium radicle there and I asked Prof. Roger Adams, head of the department, how they do it and know what they are doing.

It seems that for 75 years chemists have been developing tables of the structure and reactions of various substances which may be used much as the student of trigonometry uses his tables of logarithms. When a new substance is to be investigated, it is gradually broken down, keeping a record of each reaction, until one of the substances in the table is reached. If the type of changes thus produced has been carefully noted, the substance can be built up again, synthetically, or such changes in its structure as seem desirable can be introduced.



In the important work which Prof. Adams has been doing with chaulmoogric acid, he first analyzed the substance and then set out to build up another, leaving out such groups as appeared to be unnecessary for the production of results. They now have about 30 substances resembling chaulmoogric acid, all of which are more or less bactericidal to the *Bacillus leprae*, *in vitro*, and expect to develop more. After careful tests they will determine which of the most active ones can be produced on a commercial scale and subject one or two of these to clinical tests in the actual treatment of leprosy. This will take several years, but when one remembers that it takes an experienced chemist, with all raw materials at hand, 6 or 8 weeks to build up one homolog of a known substance, one realizes that a successful worker in chemistry must be infinitely patient.

Dr. W. C. Ross is making some interesting studies in the division of physiologic chemistry.

It has been determined that at least 4 of the amino acids are essential to normal metabolism. These are cystine, tryptophane, lysine and histidine (and possibly also a fifth, arginine). Rats fed on diets from which these substances have been removed lose weight and present other symptoms of metabolic deficiency; nor can these amino acids be replaced by synthetic substances unless these are almost identical with the acids removed. The living body is very exacting.

It may be we shall presently find that there are disease states due to deficiency of various amino acids in the diet, analogous to the vitamin-deficiency diseases such as rickets and beri-beri.

An interesting point, of importance in therapeutics, is that Dr. Rose has demonstrated that inorganic iron is just as readily available to supply the body's needs as are the organic preparations of this metal.

Prof. B. S. Hopkins has recently discovered a new element, among the rare earths, between neodymium and samarium, to which he has given the name of "Illinium", after the school. I asked him how he went about it and what was the importance of the discovery.

The process involved a profound study of the periodic table of the elements and the determination of the properties which ought to be possessed by the missing element. The most promising raw material seemed to be a rare sand, obtained from India and Brazil,

from which a substance used in the manufacture of Welsbach gas mantles is obtained. From this sand an extractive was obtained which, when placed in the anode of a specially constructed x-ray tube, showed absorption bands in the x-ray spectrum different from those produced by any known element, thus proving that a new one was present.

This sounds rather simple, perhaps, but it required months of the most painstaking manipulations and the profoundest thought to arrive at this discovery.

Illinium has not yet been isolated in a pure state, but they are getting nearer and nearer to it. Eventually Dr. Hopkins expects to recover about 1 Gram of pure Illinium from a thousand pounds of the Brazilian sand.

The discovery has, of course, no commercial importance at the present time, but the fact that the whole process was first worked out by logical, scientific reasoning and then found to behave exactly as predicted, is of enormous significance, as it demonstrates once more the absolute infallibility of the laws of science.

GEO. B. LAKE,

Chicago.

#### CHILDREN'S DAY DREAMS

Fantasies which are the products of day dreaming often serve a very useful purpose in the development of the child's mental life.

One little youngster, when about 4 years of age, having been deceived by his mother regarding the death of his grandmother to whom he was much attached, took refuge in his imagination to lessen, for the moment at least, the severe sting he felt at the loss of his grandmother. He began to tell the other children that his grandmother was not dead but had gone to New York and was going to have him and all the other children down there, and went on to describe the pleasures of the trip. One can easily see that this process of self-deception served to make his loss more tolerable.

Imaginary playmates and day dreams can be considered perfectly normal psychological mechanisms in the life of the child. It is only when these day dreams satisfy to an abnormal degree the emotional life of the child that they become serious. One must guard against allowing the habit of day dreaming to be substituted for the effort necessary to get enjoyment and satisfaction out of reality.

In dealing with the fabrications that have no basis in fact or that serve no apparent useful purpose—that is, the so-called products of day dreaming—it is neither necessary nor desirable to make the child admit the lack of reality in his dreams. It is much better simply to impress him with the fact that you, as an adult, are taking it for granted that he is making up an interesting story which amuses you as any story might and that the possibility of accepting it as truth has never occurred to you. There is less danger in encouraging these make-believe stories in children, if they are given to understand that you accept them as such, than there is in trying to inhibit them by denying their existence or by punishing the narrator. Such punishment is apt to increase the romance the child derives from his stories, fill him with self-pity, make him introspective, and drive him further away from reality.

D. A. THOM,

Boston, Mass.

#### 10,300,000 VACCINATIONS FOR SMALLPOX WITHOUT A SINGLE REPORTED CASE OF SYPHILIS

It has come to the attention of the undersigned that false statements are being circulated, that have caused some people to believe or fear that vaccination against smallpox may cause syphilis. Since the activities under our charge furnish direct evidence in refutation of this idea we have considered it our duty to issue a statement that syphilization as a result of vaccination does not occur.

Before the discovery of smallpox vaccine, the only protection against the dangers of smallpox was by inoculating a person intentionally with the disease and thereby producing, in general, a milder attack than that contracted when smallpox was caught in a natural manner. In this way the inoculation of syphilis along with smallpox, or even of syphilis instead of smallpox was possible. This possibility also existed when vaccination first supplanted smallpox inoculation, and was performed, as was smallpox inoculation, from the arm of one human subject to another. Cases of syphilis following inoculation or vaccination with human vaccine were, nevertheless, extremely rare. Syphilis, however, is a disease confined in nature to the human species alone, and as soon as the use of calf vaccine instead of human vaccine became universal

the possibility of transferring syphilis by vaccination was entirely done away with.

Since 1917 the United States Army has vaccinated approximately 4,700,000 members of its personnel; the United States Navy has vaccinated approximately 950,000 members of its personnel; and of these 5,650,000 persons, *not one* of them ever developed syphilis as a result of vaccination. In not one of them was there ever any *suspicion* of syphilis in connection with vaccination. During this same period, the United States Public Health Service has also vaccinated 2,918,748 persons in carrying out its quarantine, immigration and hospital work. While the Service has not always had the opportunity of following up these vaccinations, as is carefully done in the Army and Navy, no one has ever alleged that any particular individual vaccinated by the Public Health Service, has contracted syphilis as a result of vaccination.

During the past ten years more than 2,000,000 persons, including school children, have been vaccinated by State and local health authorities in cooperation with the United States Public Health Service, making a grand total of 10,568,748 vaccinations recorded by the Government medical services, and not one of the undersigned has ever received an allegation or a statement charging that any particular individual of this number has contracted syphilis as a result of vaccination. In fact, there has never been reported anywhere a case of syphilis attributable to vaccination following the use of bovine smallpox vaccine.

Smallpox vaccine is a standard medicinal product, the quality of which is prescribed by the United States Pharmacopeia and as such is subject to the provisions of the Pure Food and Drugs Law. Furthermore, smallpox vaccine, together with other vaccines and serums for human use, has been deemed of such importance by the Government that its production for sale within the jurisdiction of the United States has been under the special protection of an Act passed July 1, 1902, antedating even the Pure Food and Drugs Law. Under this law all establishments producing smallpox vaccine for interstate sale must be licensed by the Secretary of the Treasury upon the recommendation of the United States Public Health Service, and the production is controlled by regulations drawn up by a board composed of the undersigned. These regulations provide for repeated inspections of the producing laboratories, for proper labeling, and for all safe-

guards which may be thrown about the making of such an important product. At present even the placing of the vaccine in the small tubes and the sealing of these tubes is required to be done in such a way that no hand, even though sterile, touches the vaccine. Repeated examinations of the product, for safety, are required.

This vaccine was used in the vaccination of the millions mentioned above and is exactly the same as that used by doctors in private practice in the vaccination of the general public throughout the United States.

(Signed) M. W. IRELAND,\*  
Surgeon General, U. S. Army

(Signed) E. R. STITT,\*  
Surgeon General, U. S. Navy

(Signed) H. S. CUMMING,\*  
Surgeon General U. S. Public Health Service.

[This is valuable reference material to have on tap when some antivaccinationist begins scattering puerile misinformation. Keep it in mind. Ed.]

\*The original signed copy of this statement is on file at the Office of the Surgeon General, United States Public Health Service, Washington, D. C.

#### THE RULES OF THE SUN BATH

Though heliotherapy is as old as mankind, its scientific application is almost as new as the century in which we live. Helio-prevention, if I may use a new word, is still more recent. Much of the success and popularity of sun baths will depend upon the enthusiasm with which small groups of parents welcome them for their children.

All well children, whether strong or delicate, will benefit from sun baths properly regulated. If a child is not well, sun baths should be undertaken only under the direction of a physician, but in many instances better health will be coincident with the beginning of sun baths. Overenthusiasm in the use of sunlight must be avoided. Benefit is received even during the slow preparatory period when the skin is beginning to pigment. Harm may be done by too much haste. The rules of the game are as follows:

*First.*—To progress slowly, but regularly, starting with a few minutes and working up to two or three hours.

*Second.*—To watch for pigmentation of the skin, avoiding sunburn, and to increase the length of sun bath accordingly.

*Third.*—To expose the arms and legs first and the body afterwards.

*Fourth.*—To use the morning sunlight of spring, summer, and fall, and all the available sunlight of winter. In summer the head should be protected from the heat in the middle of the day.

If these general rules are followed, sun baths may be given to children of any age.

CHILDREN'S BUREAU,  
U. S. Department of Labor.

#### PHYSIOLOGY AND NUTRITION

You are laying the axe at the root of the tree when you emphasize the danger of educating our young doctors to be ultra-scientific, more interested in pathology than physiology and apparently having no interest whatever in nutrition, which is the basis of physiology.

We have succeeded in standardizing everything but the patient and probably that will never be done. The average patient has something more to treat than his disease.

We are developing a wonderful scientific technic, faultless in its application, almost marvelous in its results, but at the same time the recurrence of diseases and the increasing amount of surgery seem to be due to the fact that we are scientifically myopic, in that the specialist sees only the relation of his part of the anatomy to the body, and the internist is indifferent to the fact that our super-refined foods are slowly undermining the health of the race.

If we doctors would set a better example of living and get out more in the sunshine and open air, the effect on our patients as well as ourselves would be very far-reaching.

J. A. STUCKY,  
Lexington, Ky.

# The Leisure Hour

Conducted by GEORGE H. CANDLER, M.D.

## My Latest Outing

**A**N outing was prescribed and, in fact, had become necessary for me. To get away from the usual routine of the everyday busy life, of grunts and groans, with "misery in the breast, and pains at the pit of my stomach," to cut loose from the anxieties that were then gnawing at my vitals—just something that could represent an entire change from accustomed lines of routine occupation.

Just how to meet the conditions here demanded was for a time my problem. But I've had many problems; in fact, my whole life has been just one procession of problems, and I have become accustomed to making the efforts necessary to solve them.

After all, our lives are just made up of a series of small events—a plumb line of little things, which seem destined to succeed each other. We each have our multitude of little things, to deal with and dispose of. I had one myself a long time ago, and this was but a beginning of a chain of affairs which may never end.

Each life is but the sum of things brought forth by the occurrence of a moment, yet, an eternal mystery still. This series of small problems means just taking life in broken doses. Should we be forced to shoulder accumulated heavy loads, we could never progress. The Designer knows our strength and His is the wiser way, let us never forget. For the most part, we are just begging the question of existence.

For my outing, among the essentials to be considered, was the bulk of my accumulated cash: and lo and behold, when I searched diligently for it, I found it not. The mountain was afar off, and the railroads demanded a cash fare, and the high cost of living, as well as that of dying, is a problem with which we shall all have to calculate, or some other will certainly have to calculate for us. But, the mountains, or some highup place or condition, had to be reached by me, from which location I might recharge my mental, physical, and spiritual batteries, that my usefulness may go on.

My trunk was actually packed, and my absence from accustomed quarters was defi-

nately arranged for; so I cast about in very earnest, and "I wandered in the wilderness and the solitary way, and I found no city to dwell in." "Hungry and thirsty, my soul fainted in me"—then, the mother of invention stepped forth, and she led me forth by the right way that I might find a city of habitation.

My problem became now an easy one, and I felt amazed that the idea had never occurred before: I was to take my outing on my back porch, and then go for deeper rest, under the elm bushes which skirt the hill, a very convenient retreat, that is some way back, quite out of line, and away from the flies and domestic odors. For the first time, my freedom dawned upon me as it has rarely done before, if ever—my freedom from the dominion of the almighty dollar. In this I have had not many masters. Jesus tells us to lay not up for ourselves treasures upon earth; and while I may have violated almost every other mandate of His, this one I have kept with faithfulness; for all my life, each dawning dollar, as it was called into my keeping, has been put on immediate duty: and being round, it rolled. Then, too, there's an excuse. My dollars have always inhabited the desert, and the waste places, and the solitary way, where they were forced to call a te-dee to each other over the hill, to establish communication. They have never yet bunched on me, nor formed a clump collection and thus become numerous, and this may account for some of my goodness. Have thus far managed never to have enough politics or religion to fall out about. All religions have seemed good to me, until I tried to put one into daily practice, and it was just here that appeared the difficulty. Rascality has never appeared enticing, until I began to flirt with some form of religion, then its aroma blinded me to the world, the flesh, and the devil. My goodness is of that peculiar type, so common among men and women, and the children of 'em.

Whenever I go to pray, I have first thanked God for the things I missed, or was because of His restraint, forced to



miss. Not that I have not erred, for if you know anyone down about Detroit who has never played the darned fool, he is not in my class.

But, this outing was upon me, and was to be disposed of, and I was to begin immediately. The first thing to be done in my case was to rid my mind and heart of its accumulated dust and dislikes, and to sweep all cinders into the sewer of forgetfulness. My cockleburs of hate must all pass from me. I was to allow no man to injure me, by making me hate him. Hate and revenge must dematerialize forever. My back yard was then to become my front yard, and it followed that I must now turn the opera glasses upon myself and view it as it was and still is. As I did this my pride received a compound fracture, from which it may take it months to rally.

But a resetting was needed, and so I learned to smile at this torture. Few good things can ever come to us without some pain.

There being no pressing demands, that I should work continuously, opportunities were given me, that I might consider my friends, and my many blessings, and as one by one, they took their places upon the line of my consciousness, that I might view them over and over, a mother's weakness came near mastering me, as I branded myself an ingrate, and here I formulated many a deep resolve. I had spent much of my recent time, chasing the ghosts of my past hopes, through the graveyards of past opportunities—lost by my sordid self, and selfish desires. Then I, too, wasted much nerve force, just grabbing with greed at the grip-sack of greatness. But had I been successful in placing salt upon the tail of this phantom, bird or devil, it would have only wounded me, and left me totally unfit for future service. Computing the successful catch, the entanglements, I am again thanking God for what I have missed. Then, this unusual quietness, my line of performances, and affairs, have been made quite clear to my scanning, and it is right here that I have become able to forgive many a fancied wrong, over which I have chafed and grieved: and a new light has stolen upon the whole to make many troublesome things easy for me, and thus duty of a beautiful type has become clear and easy.

This has been a new and peculiar bit of house-cleaning, but it was the one thing needful to both my soul and my body.

Now I am omitting a great deal of this outing experience for the sake of brevity,

but I've had my outing, and am the better for it by far. So, I'll take hold of my old duties with renewed hands, that have become clean and fresh; and hopes which were once strangers to me, now lurk in my consciousness to direct me on. So with this clearer view, I shall clearer see, and better hear my constructive way, and shall sincerely say, "Surely goodness and mercy shall follow me all the days of my life," and I shall have plenty to eat and wear as long as I shall live.

"O God, that man might see a little clearer,  
Or judge less harshly what he cannot see;  
O God, that man might stand a little nearer  
To one another, then they'd be nearer  
THEE."

L. H. HENLEY, M.D.,

Claremore, Okla.

#### DANGERS OF PHYSICAL THERAPY

Bride (at phone)—"Oh, John, hurry home and tell me what's wrong. I forgot and somehow got the plugs mixed, and now the radio is covered with frost and the refrigerator is singing 'Welcome Is the Warmth of Spring.'"

Groom (Physiotherapy graduate)—"That's nothing to worry about, I just treated a patient with the actino ray and he complained bitterly of faradic, and now there is a patient in the office who wants to sue me for burning his back and all I gave him yesterday was fifteen minutes of sine wave treatment while the book says from twenty minutes to half an hour."—*Fischer's Magazine*.

#### CONVINCING PROOF

"Doctor," said the sick man, "the other physicians who have been in consultation over my case seem to differ with you in the diagnosis."

"I know they do," replied the doctor, who had great confidence in himself, "but the autopsy will show who was right."—*Fischer's Magazine*.

#### A "SPOONERISM"

Dr. Spooner, whose name has been made famous by his alleged habit of transposing the first letters of important words, was asked by a friend where he got his groceries.

"Oh", he replied, "we always steal at the doors".



# Diagnostic Pointers

## CANCER OF THE FUNDUS UTERI

Cancer of the fundus is different, biologically, clinically and anatomically, from cancer of the cervix. It is usually adenocarcinoma; comes on later in life; grows more slowly; and is not so readily disseminated by metastasis. Treatment with radium and x-rays gives as good results as those shown by surgery (35 to 50 percent of cases alive after five years).—DR. DODERLEIN, in *Zentralbl. f. Gynäk.*

## STOMACH SYMPTOMS IN SYPHILIS

Approximately 10 percent of cases of latent syphilis show stomach symptoms. One of the first symptoms of the spinal cord lesions of latent syphilis is apt to be indigestion in some form. Every case of obstinate stomach trouble should be exhaustively examined for syphilis.—DR. ALBERT CRANCE, in *Urol. & Cut. Rev.*

## THE ENDOCRINES AND PERSONAL CHARACTERISTICS

If, during the growing period, the anterior pituitary prevails, there ensues an undersexed giant; if the testis prevails, there ensues a man of short stature, thick-set and hirsute, who is oversexed.—DR. LEONARD WILLIAMS, in "Obesity".

## SINUS THROMBOSIS AND EMBOLISM

If sinus thrombosis develops in a mastoid case, be on the watch for symptoms of embolism in various parts of the body, as the lung, the knee, etc.—DR. JOSEPH BECK, of Chicago.

## TOOTHACHE AND EAR DISEASE

Otalgia is known to be caused, in some cases, by affections of the teeth; and middle ear disease can also cause toothache. In some of these cases, paracentesis tympani relieves the pain in the teeth immediately.—DR. CASTERAN, in *Rev. med. Latin Am.*

## MORTALITY OF PNEUMONIA

The case fatality in 6,500 cases of lobar pneumonia treated in Cook County Hospital, Chicago, was 36 percent. The rate varied in different years and at different seasons,

and was lower in negroes than in whites. Fatalities were lowest in children from 5 to 9 years old and after that increased in proportion to age.—DR. KELLY, in *J. Infect. Dis.*

## STANDARDS OF INTERPRETATION IN GONORRHEA

1.—In the absence of gentle local treatment of the urethra, in the male dispensary patient, the posterior urethra is involved in at least 95 percent of the cases. Practically always in the negro.

2.—If under any plan of treatment the first glass of urine remains persistently cloudy for thirteen days or longer the infection always passes to the posterior urethra.

3.—If the urine has once definitely started to clear it will continue to do so providing the patient's conduct is good and the treatment not too strenuous.

4.—Any sudden change for the worse in the urinary picture, once it has started to clear, is due to the local treatment or the patient's conduct and not to the disease per se.

5.—When charted, cases under oral treatment, except on the advent of posterior urethritis or epididymitis, show gradual lines and not sharp changes, providing the patient's conduct is good.

6.—Sudden clearing of the urinary picture, except that occurring with acute epididymitis, is to be attributed to the treatment and not to be general trend of the disease in the given case.

7.—No plan of treatment will counteract the effects of sexual excitement, alcohol, or trauma.

8.—An erratic charted line, showing repeated urinary changes is due to avoidable influences on the part of the patient or the physician.—DRS. PELOUZE AND SCHOFIELD, in *J. Urol.*

## LOSS OF INTEREST

When life ceases to be an adventure there is a distinct psychic loss—a listlessness, inattentiveness, a withdrawal of interest which psycho-pathologists describe as an "introversion of the libido." The vital interest turns from objects to which the individual no longer can react with satisfaction,

and is directed inward toward the ego itself. In such cases there is commonly a serious disturbance of the whole personality.—EVERETT DEAN MARTIN, in *Psychology*.

#### "TEETHING" A DIAGNOSTIC SUBTERFUGE

"Teething" is an excuse for much lack of diagnostic acumen. We must search farther than the jaws, for the irritation of teething is rarely more than the final straw in precipitating disaster.—DR. JOSEPH GARLAND, in *Bost. M. & S. J.*

#### SPINAL CURVATURE AND KIDNEY DISEASE

Lumbar scoliosis may direct attention to renal stone, hydronephrosis, or perinephritic abscess which had not been suspected.—DR. JOHN R. CARTY, in *Bost. M. & S. J.*

#### RHEUMATISM IN CHILDREN

Rheumatism is a joint disease in the adult, and more or less subacute, while in children it is an acute condition, and to all intents and purposes a heart disease. A child may suffer from acute rheumatism with heart disease, and at the same time hardly have a joint symptom.—DR. HUGH T. ASHBY, in *Practitioner*.

#### PYELITIS IN LITTLE GIRLS

Pyelitis is so common in little girls that repeated uranalyses should be made in all cases of fever in this sex which lasts more than two or three days and for which no obvious cause can be found.—DR. JAMES W. BRUCE, in *Therap. Gaz.*

#### THE PROSTATE AND SEX FUNCTION

Hypertrophy of the prostate occurs too often at the onset of impotence to be attributed to coincidence. We must conclude that the prostate, with the testicles, is responsible for sex desire and sex function.—Editorial, *Endocrine Survey*.

#### CHOLEMIA

Bile pigment is always present in the blood in small quantities, but not enough to produce jaundice.—DR. M. A. BLANKENHORN, of Cleveland, O.

#### ADMINISTRATION OF DYES FOR CHOLECYSTOGRAPHY

The oral administration of tetraiodophenolphthalein is equal to the intravenous method for the determination of the

presence or absence of a normal gall-bladder shadow, but the latter is superior for distinction of intensity, late appearance and permanence of the shadow.—DR. KARL PRESSOR, in *Wien. klin. Wchnschr.*

#### GONORRHEAL RHEUMATISM

An important differential diagnostic point in gonorrheal rheumatism is the practical absence of fever.—*Urol. & Cutan. Rev.*

#### HEADACHE

Headache may be inside or outside of the head.

Outside headaches are neuritis, are generally unilateral and are accompanied by tenderness.

Inside headaches are due to overeating, hunger, high blood pressure, anemia, fever and plethora.

Symptomatic headaches occur in gastrointestinal, kidney and sinus disease and in brain tumors, from pressure.

Nocturnal headache suggests syphilis as a cause.

Headache from hypertension and sinus disease is worse on arising in the morning and subsides toward noon.

Pituitary congestion may cause bitemporal headache, sometimes accompanied by pathologic sleepiness and worse after excess of carbohydrates.

Most headaches eat irrationally and get too little exercise and fresh air.—DR. JOHN W. SHUMAN, in *M. J. & Record*.

#### ANAPHYLAXIS IN EPILEPSY

The incidence of protein sensitization in epileptics varies from 37 to 56.8 percent: In nonepileptics it is about 8 percent. The significance of this rate is not yet determined, but invites further study.—DRS. WARD AND PATTERSON, in *Arch. Neurol. & Psychiat.*

#### ABDOMINAL REFLEX

It is difficult to elicit the abdominal reflex after pregnancy or a laparotomy.—DR. L. M. GAINES, of Atlanta, Ga.

#### BLOOD PRESSURE WAVES

If the blood pressure curve is recorded by suitable apparatus for any length of time, three distinct orders of pressure oscillations can be observed. The first, the shortest wave, is cardiac and corresponds to the heart beat. It is caused by the difference in tension between the systolic and diastolic

phases of the heart cycle. Next comes a longer wave known as the respiratory wave which is due to the combined effect of the changes in the pulmonary vessels, the changes in the vasomotor and cardiac inhibitory centers and, to some extent, to the variations in thoracic and intra-abdominal pressures. Finally, there are still longer waves, the so-called oscillations of the third order. These are due mainly to rhythmic changes in the activity of the vasoconstrictor center, and are apparently responsible for the blood pressure variations found in normal individuals. — DR. JULIUS FERBER, in *M. J & Rec.*

### INFLAMED EYES

There are two types of injection or inflammation of the eye to be differentiated. Superficial or conjunctival injection (Fig. 1), and deep or circumcorneal injection (Fig. 2). These two forms are frequently associated in the same eye.



Fig. 1.



Fig. 2.

The former type is generally mild and clears up promptly under simple local treatment; the latter indicates involvement of the deep structures—iris and ciliary body—and calls for a careful general diagnosis and vigorous local and general treatment.

Failure to differentiate between these types of injection may result in disaster. — DR. E. R. CROSSLEY, in *Bull. Chicago M.S.*

### CAUSES OF SUDDEN DEATH

Prominent among the causes of sudden death are: Status lymphaticus, various valvular heart diseases, angina pectoris, syphilis of the blood vessels, aortic aneurism, myocarditis, adherent pericardium, edema of the lungs, heart block and paroxysmal tachycardia. DR. MAX GROSSMAN, in *M. J. & Record*.

### THE NATURE OF CANCER

The work of Gye and Barnard in connection with an organism causing cancer has not been confirmed by other investigators.

The present evidence indicates that cancer is not a contagious disease, but a disease of the cells themselves, resulting, perhaps, from some intrinsic, physical or chemical disturbance. — DRS. HARKINS, SCHAMBERG, KOLMER AND KAST, in *J. Cancer Research*.

### THE DIASTOLIC PRESSURE

When the diastolic blood pressure is high, the aorta dilates.

Patients with a diastolic pressure of 130 mm. or more usually die in less than two years. — DR. STEWERT R. ROBERTS, of Atlanta, Ga.

### JAUNDICE AND THE WASSERMANN TEST

Patients with deep jaundice may give a positive Wassermann test, although syphilis cannot be demonstrated. — DR. W. A. SELMAN, of Atlanta, Ga.



# Current Medical Literature

## THE GONOPHAGE

The work of d'Herelle in connection with the bacteriophage, was briefly reviewed in *CLINICAL MEDICINE* for September, 1926. (p. 622), and now Drs. P. S. Pelouze and Frederick S. Schofield present, in *J. Urology* for April, 1927, what seems to be conclusive evidence that they have discovered a phage which is specific for the gonococcus.

Extensive and carefully controlled laboratory experiments show that, in practically all old cultures of gonococci, a substance is produced which causes inhibition, death or complete lysis of other gonococci, according to the dilution and the length of exposure. It inhibits in a dilution of 1:1,000,000 and is lytic at 1:100,000.

This substance is transmissible from culture to culture; attacks only gonococci; and is destroyed by a temperature of 65° to 70°C. but not by 1:1,000 mercuric chloride or 1:50 phenol.

After careful tests to determine the toxicity of the gonophage had demonstrated its harmlessness, it was injected, hypodermically, in dispensary patients, in varying doses (0.1 cc. of a 1:1000 dilution of the original phage, given only once, as a rule, is believed to be best) and the effects observed.

These effects were not marvelous or striking, but it was noted that the infections were confined to the anterior urethra in a much higher percentage of cases than that found in those not so treated. There were no systemic reactions of any consequence.

When the gonophage was sealed in the urethra it produced a marked aggravation of the local symptoms due, no doubt, to the gonotoxins from the cultures which are, so far, unavoidably present in suspensions of the gonophage.

The general impression of the authors is that, while there is, at present, no ground for considering the phage as a specific for gonorrhea, it has, however, distinct therapeutic value and investigations should be continued, especially for the development of a more effective method for its administration.

## THE PRIVATE PRACTICE OF PREVENTIVE MEDICINE

The old order in the practice of medicine is changing, and those who adapt themselves to modern ideas will benefit their patients and themselves.

Preventive medicine is the coming field of practice, and Dr. Paul B. Brooks, Deputy State Commissioner of Health of New York, in the *N. Y. State J. of M.* for December, 1926, remarks upon the fact that too few physicians are fully awake to the possi-

bilities along this line. So true is this that persons who apply to their physicians for health examinations are sometimes mildly ridiculed and told that they are "all right." Those who do this are sending profitable work to someone else.

At present people are inclined to call the doctor only when sickness occurs, but that is uneconomic and the public will soon come to realize that "an ounce of prevention is worth a pound of cure"—and pay for the prevention on that basis.

Dr. Brooks believes that physicians should qualify themselves to administer protective inoculations and vaccinations (small-pox, diphtheria, scarlet fever, etc.) and to make periodic health examinations; and that until they do this they have no right to complain that the State is infringing upon their practice, because the authorities always refer patients to their own physicians, if these are competent and willing to do the work properly.

He also feels that, when we are ready to perform these services, we should educate the public to their value and necessity, subordinating antiquated ideas of professional ethics (in the narrow and technical sense) to the public good.

## NONSPECIFIC THERAPY IN BRONCHIAL ASTHMA AND HAY-FEVER

So many theories as to the cause of asthma and hay-fever have been propounded, and so many plans of treatment have been suggested that chaos appears to rule in this field.

Dr. Nathan S. Schiff, of New York, contributed an interesting study of the problem of allergy in the October, 1926, number of *Ann. Clin. Med.*

Schiff concludes that the various methods of skin testing and the therapy based upon such tests are not very reliable and believes that nonspecific protein therapy is a great advance in this field.

He uses *boiled milk*, beginning with 0.5 to 1 cc., subcutaneously, increasing the dose by 0.5 or 1 cc. every 2 or 3 days, up to 5 cc.; or a mixture of equal parts of *peptone*, glycerin and water, filtered and sterilized, giving an initial dose of 3 minims and gradually increasing doses every 2 or 3 days, up to 1 cc.; or *stock vaccines*, beginning with 200 million (3 minims of a standard solution containing 1 billion organisms to 1 cc.), and increasing 1 minim every 2 or 3 days, up to 1 cc.

Dr. Schiff feels that the local reaction is an index of the relief to be expected and that without good reactions no improvement is manifest.

He warns that one should always be ready to inject epinephrin and atropine if symptoms of anaphylaxis appear, and that one must watch for the limits of tolerance to the various proteins. The first symptom of overdosage with vaccines is nausea; with peptone, drowsiness and chilliness; and with milk, epistaxis and bilateral frontal headache. When these appear wait a little and then proceed very cautiously.

The doctor feels that the use of peptone solution, as described, is preferable to specific pollen therapy for the co-seasonal treatment of hay-fever.

### EPHEDRINE IN RHINOLOGY

In the *Laryngoscope* for March, 1927, Dr. C. C. Merkel, of Iowa City, Ia., reports the results of his use of ephedrine hydrochloride in treating nasal and accessory sinus conditions. He used the drug in a spray, topically, by means of cotton on a probe and by nasal packs, employing a 2-percent solution in children and 3-percent for adults.

Contact of the drug with the tissues for a few seconds is all that is necessary. The probe method is best in adults and the spray in children. A second spraying must be done after the anterior intranasal structures have become shrunken in order to reach the posterior tissues.

Merkel treated 15 infants with ethmoiditis by the following method: Irrigation of the nose with warm saline solution; spraying of the nose with 2-percent ephedrine solution one-half hour later; after five minutes, 3 drops of a 5-percent argyrol solution in each nostril. This gave good ventilation and drainage and the results were satisfactory.

The use of a 3-percent solution in adults, for diagnostic and therapeutic purposes, has been highly satisfactory. Ventilation and drainage have persisted for three or four hours and there has been no subsequent engorgement of the tissues such as that following the use of epinephrin.

No untoward symptoms have followed the local application of ephedrine.

### DIAGNOSIS AND TREATMENT OF ABORTION

In the *Bost. M. & S. J.* for Oct. 28, 1926, Dr. John Rock states that the important point in the diagnosis of abortion is to differentiate between those cases in which the accident is merely threatened and those in which it is inevitable. The treatment of threatened abortion is deterrent; that for inevitable cases is provocative.

The following arbitrary standards are those of inevitable abortion. Any case which does not show at least one of these signs is in the threatening stage:

1.—Hemorrhage enough to soak five napkins in twenty-four hours.

2.—Hemorrhage over a period of days, too severe to permit continual recovery of the blood supply, as evidenced by blood count and hemoglobin determination, objective appearance or subjective feelings of the patient.

3.—Characteristic rhythmic, sharp, aching pain, low in the pelvis or back, and not stopped by moderate doses of morphine.

4.—Evidence of ruptured membranes, in conjunction with or followed by any of the above.

The treatment for threatened miscarriage is complete rest until the patient is free from symptoms for at least 48 hours. If there is pain or she is restless, upset, or irritable, opiates should be given in sufficient quantities to keep her quiet and peaceful. Morphine subcutaneously, codeine or morphine by mouth or opium suppositories can be given according to the indication. Simple diet, omitting foods with large residues, should be administered.

After-examination of the patient should follow a week after signs have been absent. The condition of the cervix should be investigated, both by inspection and palpation. The size of the uterus should be accurately noted for comparison the month following.

As soon as it has been decided that the ovum is dead, steps should be taken to deliver it.

### SACRAL ANESTHESIA FOR OPERATIONS ON THE URINARY BLADDER

In a recent report to the staff of The Mayo Clinic (*Proceedings*, February 9, 1927), Dr. John S. Lundy, of the Section on Anesthesia, reports 1023 cases of operations on the urinary bladder, performed under regional (sacral) anesthesia. In 93 percent of these there was no untoward drug reaction, procaine being used as the anesthetic. These cases included 525 prostatectomies, also operations for the removal of tumors, cystostomy, cystoscopy, fulguration of the bladder, litholapaxy, etc. No deaths were reported and the drug complications were apparently minor in character.

The skin was rendered aseptic over the sacrum as for surgical operation, 2 percent mercurochrome in alcohol and acetone being employed. The solution used for the production of anesthesia is 1 percent procaine with the addition of epinephrin. The epinephrin is added just before the solution is used, in the proportion of 6 minims of a 1:1000 solution to 100 cc. of procaine.

Caudal block is obtained by the injection of about 30 cc. of the procaine-epinephrin solution into the caudal canal. Wheals are raised in the skin over the first to the fourth sacral foramina on each side. Through these wheals needles are inserted, and procaine-epinephrin solution is injected as follows: 3 cc. in each fourth sacral foramen; 4 cc. in the third; 10 cc. in the second; and 15 cc. in the first. The needles are inserted about halfway through the thickness of the sacrum at the point of injection. Anesthesia is produced in from five to ten minutes following injection if the solution is at body temperature, and usually lasts an hour and a half. Generally speaking, about 100 cc. of 1-percent procaine-epinephrin solution is used to obtain anesthesia by the complete transsacral block.



The patient is then turned on his back, the abdomen exposed, and the skin prepared with mercurochrome. Two dermal wheals are raised at the lateral border of the rectus muscle, midway between the umbilicus and the pubes. On each side the block is made by a subcutaneous intradermal injection and deep injection into the superficial fascia. For blocking the abdominal wall, 100 cc. of 0.5-percent solution of procaine is used. Just before injection 6 minims of 1:1000 epinephrin solution is added. The purpose of the abdominal block is to anesthetize the median line from the umbilicus to the pubes so as to permit an incision to be made down to the bladder. Sometimes the space of Retzius is also injected, but this is a preference that is not general among surgeons.

(For further details of technic, see CLIN. MED. AND SURG., March, 1927, p. 213.)

#### TREATING RICKETS WITH IRRADIATED MILK POWDER

In *Klin. Wehnschr.*, Dr. György, of the Heidelberg Pediatric Clinic, reports that he has had good results in treating rickets with powdered, high-grade milk, subjected to ultraviolet irradiation.

The powder was spread in a thin layer and rayed for 45 to 60 minutes.

Forty cases are reported and compared with controls. Results were checked by roentgenograms and blood findings.

György feels sure that both rickets and tetany can be cured by this method with almost mathematical regularity.

#### GOLD-SODIUM THIOSULPHATE (SANOCRYSIN) IN LUPUS

In an article in *Archiv. Derm. & Syph.* for February, 1927, Drs. Jay F. Schamberg and Carrol S. Wright, of Philadelphia, review the history and literature of the use of gold in the treatment of lupus erythematosus and report 25 cases in which they have used gold and sodium thiosulphate in this disease, with excellent results. In 5 cases the eruption has entirely disappeared; in 6 it has almost disappeared; 12 cases (some of which are still under treatment) have shown improvement. These are remarkable results in a disease so intractable as this.

There is a marked difference in the susceptibility of different persons to the gold compounds. Some will show reactions after one or two doses; while one patient here reported received 2 injections every week for a year without any reactions.

Careful experiments have shown that gold and sodium thiosulphate is the least toxic effective gold compound now in general use. If reactions occur they come on after some hours and consist of chills, fever, nausea, vomiting, headache and prostration, or of cutaneous irritations and eruptions. In such cases the doses must be very small and increased very cautiously.

The method of treatment recommended consists of giving an initial intravenous

injection of 50 mgm. of the drug, dissolved in 2 cc. of sterile water. If well tolerated, the second dose, given after a week, is 100 mgm. This dose is repeated weekly until results or marked reactions are obtained. In cases of the disseminate type the doses should be smaller—25 mgm., increasing to 50 mgm. These are much smaller doses than those recommended by Møllgaard and commonly used in Denmark.

After the disappearance of the eruption it is well to let the patient rest for a month and then give a few additional injections to guard against a relapse.

It is unwise to use gold in pregnant women, as there seems to be some effect upon the uterus.

#### INFLUENZA AND THE HEART

It is well recognized that cardiac complications are common, during and after attacks of influenza, and Dr. Albert S. Syman, of New York, discusses the subject in the *N. Y. State J. of M.* for December, 1926, and comes to the following conclusions:

1.—Influenza must be placed among those infectious conditions which may cause cardiac mischief.

2.—Approximately 4 to 6 percent of all cases of influenza show subsequent disturbances of the heart.

3.—These disturbances are of three general types: (1) irregularities of rhythm, (2) endocardial and valvular affections, and (3) cardiovascular collapse.

4.—The severity of the original influenzal attack bears little or no relation to the extent of the cardiac damage.

5.—The repair of the cardiac mischief is very slow and it is apparently out of proportion to the extent of the damage discovered.

6.—If cardiovascular symptoms appear during or after an attack of influenza, convalescence should be extended until all demonstrable evidence of the affection has disappeared.

#### INVERTED MATERNAL INSTINCT AND NEURASTHENIA

In the *Practitioner* for December, 1926, W. A. Ogilvy describes a form of psychoneurosis due to inverted maternal instinct, as when a mother has lost an only child or a dependent parent or someone she has nursed and tended for a long period. The attention formerly bestowed upon another is turned inward upon herself and she attends to her own wants and feelings with great assiduity. Nurses and teachers never suffer from this condition as they have much to do with children all the time.

The differential diagnosis between this malady and neurasthenia is clear: Neurasthenics are usually men; are eager to get well and impatient with their condition; would be depressed if told that their case was serious; suffer from actual muscular

weakness; and are indifferent to what other people think of their illness.

The maternal invert, on the other hand, is always a woman; "enjoys poor health" and has no desire to get well; is proud of her condition and flattered if told that it is unusual or unique; shows no muscular weakness beyond that due to lack of exercise; and is deeply interested in the interest and sympathetic attention of others, brightening up under their condolences.

The treatent, for a married woman, is to have another baby, if possible, or, if not, to adopt one. If unmarried women can become interested in some useful and unselfish activity they generally improve.

### AMIDOPYRENE IN INTESTINAL FLATULENCE

Meteorism occurs frequently in tabes and other less serious conditions, in adults and children, and Dr. Hans Januschke, of Vienna, seems to have found a simple remedy for its relief, as reported in *Clin. Excerpts* for March, 1927.

The doctor noticed that a patient who used a suppository containing 7½ grains of pyramidon (amidopyrene) for the relief of severe pain passed a large amount of gas 15 or 20 minutes afterward and felt much relieved. Experiment showed that the same result occurred in many cases, but not in all. This seems to be due to the sedative or paralyzant action of the drug on the sympathetic (the intestinal inhibitor), relaxing the spasm.

These facts suggested the use of amidopyrene in the treatment of painful flatulence in infants and for the relief of spastic constipation, and the results have been gratifying.

The infants received the drug in the form of a 1-percent solution, sweetened. A teaspoonful (containing ¼ grain of amidopyrene) was given 3 times a day, 5 or 10 minutes before feedings. If (as rarely happens) it is vomited, it may be given after feedings or in suppositories. If the flatulence occurs mostly at night, the doses should be timed to meet this condition. The treatment should be continued or repeated as conditions require.

Several cases of spastic constipation have been benefited by 5-grain doses of amidopyrene, 3 times a day; and gastrointestinal colic is usually relieved by doses of 5 to 7½ grains.

### IODIZED OIL IN GYNECOLOGIC DIAGNOSIS

In the *A. J. Obst. & Gyn.* for August, 1926, Dr. Q. U. Newell traced the brief history of the use of opaque solutions as an aid to roentgenologic diagnosis.

In 1922, lipiodol (40-percent solution of iodine in poppyseed oil) came into fairly general use in diagnosis of chest conditions and spinal cord tumors. This preparation was expensive and the supply was limited, so that, in this country, iodipin (40-percent

iodine in vegetable oil) is being used for a number of the same purposes. The author finds it entirely satisfactory for gynecologic diagnosis.

The iodized oil is introduced into the uterus through a modified Keves-Ultzman urethral cannula, equipped with a rubber collar which acts as a plug against the external os. With a 15 cc. Luer syringe, about 7 cc. of the oil are injected slowly and gently into the uterine cavity, until no more will enter except under pressure. The roentgenogram is made as soon as the injection is finished.

Dr. Newell believes that iodipin injections will be of value in diagnosis:

1.—In sterility cases where the tubes are obstructed, to locate and determine the character of the obstruction and to indicate operability.

2.—When several masses are palpable within the pelvis; it differentiates the uterus from other masses.

3.—When the pelvis is blocked by one large mass. It can be found whether the tumor originates from ovary or uterus.

4.—In cases in which a foreign body is suspected in or outside the uterine cavity.

5.—In differentiating chronic appendicitis from right-sided salpingitis and tuberculous salpingitis from common salpingitis.

6.—In indicating the size of the uterus and in determining whether the cavity is encroached upon by any masses such as fibromyoma, carcinoma of the fundus, etc.

### TREATMENT OF SPRAINED ANKLES

Sprains of the ankle are among the commonest minor surgical emergencies, and Dr. Arthur B. Light, of Philadelphia, suggests a rational treatment for the condition, in the *Therap. Gaz.* for December, 1926.

Dr. Light is convinced that, after the first sharp pain of the injury, the suffering is due to the stretching of the torn tissues by hemorrhage and effusion or to abnormal notions of the joint. He therefore directs his treatment so as to minimize hemorrhage.

His treatment consists of elevating the leg, putting on a very firm bandage (even to the point of causing pain) and applying cold, in the form of wet towels, which he considers superior to ice, for this purpose. While heat causes immediate relief of the pain, the author feels that the end results of this treatment are disastrous.

The firm bandage and cold applications are continued for 2 hours, when the bandage is removed and reapplied as snugly as is compatible with comfort. The leg is kept elevated for 24 hours.

At the end of the 24 hours, the joint is x-rayed to determine the presence of fracture. If none is found, very gentle massage is given for a few minutes, the firm bandage reapplied and the patient told to get up and walk slowly in a straight line. After a few minutes of walking, the ankle will swell again; but the pain and swelling promptly subside when the leg is elevated.

This treatment is continued for 3 days, and is then changed to the application of

heat, while, the leg is in an elevated position, to favor the absorption and removal of the exudates from about the joint. The heat treatment is followed by gentle massage and more careful walking.

By the fifth day the patient may run, and a Gibboney boot is applied to prevent abnormal motions of the ankle. There is then no pain or discomfort, but for some time the ankle will swell after exercise. This is of no moment.

At the end of a week all strappings may be removed, except that, in the case of athletes, the joint should be strapped before they enter any contest.

#### NEUTRAL ACRIFLAVINE IN NONSPECIFIC ULCERATIVE COLITIS

In an article on the treatment of chronic diarrhea, by Dr. Wells Teachnor, Sr., of Columbus, O., appearing in *Ohio State M. J.* for February, 1927, the use of neutral acriflavine in nonspecific colitis is considered.

Teachnor reviews the literature, showing that neutral acriflavine in strengths of 1:4,000 to 1:2,000 is practically unirritating in the rectum and colon and that, in high dilutions, it inhibits the growth of the colon bacillus and the staphylococci. It penetrates deeply into the tissues with considerable rapidity and appears in the urine promptly, after oral or intravenous administration, rendering that fluid antiseptic. In therapeutic doses it is nontoxic.

The treatment used consisted of a colonic irrigation with a mild, alkaline antiseptic solution, followed by the instillation of one quart of a 1:3,000 solution of neutral acriflavine into the rectum and sigmoid. This was retained for 10 to 30 minutes. In the evening, the patient instilled one pint of the 1:3,000 solution and retained it all night, if possible. At the same time, one grain of the drug, in an enteric-coated pill, was given by mouth three times daily.

The results of this treatment are decidedly encouraging.

#### RADON SEEDS IN NEOPLASMS OF THE BLADDER

An improved method of treating neoplasms of the bladder by means of removable platinum radon seeds is described by Dr. Joseph Muir, in *Jour. Urol.* for January, 1927.

Using the seeds it is possible to obtain scientific accuracy of the dosage delivered. Radiation is directed not only to the growth itself, but to the tissue surrounding it, in order to catch the mitotic cell. The placement of the radioactive units is made so that the "zones of potential tissue change" from each source do not overlap. This zone is the amount of tissue that one seed can take care of when implanted alone and also when two or three centers are used so that intervening cells are subjected to cross firing, is described.

Using the platinum radon seeds, not only are we able to deliver accurate dosage, but because of the platinum screenage all caustic rays are eliminated and necrosis and sloughing, with intense shock to the patient, obviated. The fact that platinum radon seeds are easily removed through the cystoscope after the required amount of radiation has been delivered makes this the method of choice, since no foreign body is left in the tissues after treatment.

The technic of application is fully described and illustrated. A point of great importance in using the radon seeds is that after the first seed has been implanted through the cystoscope, its thread protruding from the portal of entry of the seed in tissue serves as a landmark and guide for the placement of successive seeds, so that the accuracy of placement of seeds through the cystoscope is greatly increased. Also, should a seed be incorrectly implanted, it may be removed and reimplanted.

In view of the highly simplified technic described, the treatment of vesical neoplasms by implantation of removable platinum radon seeds can be accomplished with as much scientific accuracy as any other urologic procedure.

J. M.

#### THE TREATMENT OF TRAUMATIC AND SEPTIC WOUNDS WITH DICHLORAMINE-T

Adams (*Boston M. & S. J.*, April 22, 1926) contributes a paper on dichloramine-T, suggested by Dakin in 1917. He states he has had nearly seven years' experience with it in both clean and septic wounds. He uses 5-percent solution in chlorocane. This is kept in four-ounce brown bottles in a cool, dark place.

In traumatic surgery the affected parts are shaved, cleaned with benzene, 70-percent iodine is applied, debridement and repair are done, the affected parts are thoroughly covered with dichloramine-T, and partial or complete closure of the skin is completed.

Where bone is compounded, unattached fragments are removed as completely as possible and the area directly above bone ends is made the seat of a gauze strip soaked with dichloramine-T. Another such strip on a more superficial level takes care of the soft parts. External wet dressings are applied in the form of hot saline or saturated boric acid solution.

The first dressing is usually done in forty-eight hours. Packs are carefully removed and the parts either sprayed with an all-glass atomizer, or fresh dichloramine-T applied to the surfaces with cotton swabs. Packs are now left out and wet dressings are applied, unless there is still a large degree of dead space, when it would be safer to replace gauze strips with dichloramine-T for another forty-eight-hour period. At the third forty-eight-hour period, if culture and smear prove negative, secondary closure may be done, or gradual closure with strips of adhesive.

The author states that dichloramine-T is commendable because of simplicity and because uniformity in technic is easily acquired. It is cheap, and is easily applied.

In one case there was a tendency to heal without sinus and sequestra formation, and in the other ready appearance of good union. It can well be said that in both these instances the primary operation largely governed these results, yet to acquire and maintain sterility is no minor secondary factor. There was total absence of gas-bacillus infection. *Therap. Gaz.*

#### COLLOIDAL GOLD IN INOPERABLE CANCER

Dr. Edward H. Ochsner, of Chicago, has previously reported good results in cases of inoperable cancer from the use of colloidal gold, and a further report appears in *Internat. J. Med & Surg.* for March, 1927.

Ochsner gives 10 drops of the commercial solution, in water, before each meal, increasing 1 drop daily up to the point of tolerance, which is shown by gastrointestinal symptoms such as beefy tongue, burning in the esophagus, colicky pains and tenesmus. He then reduces the dose 10 drops and continues it indefinitely. Some patients can take 60 drops three times a day for months.

Where it is possible to do so he applies the solution locally to the lesion; and sometimes gives a special sterile solution intravenously, in doses of 1 to 5 cc. from 1 to 3 times a week. This treatment has also been used postoperatively in surgical cases.

Six cases are reported, in all of which the results of the treatment were encouraging and, in some, striking.

The doctor is convinced that, if the cancer case is operable, surgery should be resorted to, followed by long-continued administration of colloidal gold.

In inoperable cases he feels that this remedy has a distinct inhibitory effect upon the progress of the disease and materially improves the general condition and comfort of the patient. He therefore feels that it is worthy of trial in all such cases.

#### GENTIAN VIOLET AND ACRIVIOLET IN PERNICIOUS ANEMIA

In 1912, Churchman showed that gentian violet is bacteriostatic for gram-positive microorganisms and later he demonstrated that acriflavine, acid fuchsin and similar dyes inhibit the gram-negative organisms.

Many observers believe that pernicious anemia is due to gastrointestinal infection, and upon this basis Dr. H. Milton Conner, of Rochester, Minn., has done some interesting work in the treatment of this disease by the oral administration of gentian violet and acriviolet. The preliminary report appears in *M. J. & Rec.* for January 5, 1927.

Diagnosis was based upon anemia without apparent cause, weakness, sore tongue, diarrhea, numbness and tingling, combined

sclerosis of the spinal cord, achlorhydria, high hemoglobin index and normoblasts with or without megaloblasts. Not all patients had all of these signs.

The report covers 18 cases which were observed sufficiently long to warrant some conclusions. Almost all showed a marked increase in hemoglobin and red cells and amelioration of the other symptoms.

The gentian violet was given, preferably in a 1:1000 aqueous solution, in doses of 15 cc. after each meal, increasing to 50 cc. three times a day. If the solution was too difficult to take or caused nausea, one or two  $\frac{1}{2}$  grain, enteric coated pills of the dye were given after meals. Acriviolet was administered in enteric coated tablets, in doses of 1/10 to 2/5 grain, after meals, increasing to the limit of tolerance.

Accessory treatment consisted of rest in bed and a diet rich in meat, eggs and greens. Most of them received small quantities of cooked liver, but not enough to cause any specific effects.

We must be very conservative in judging results in a small series of cases, but the author feels much encouraged by the findings following this treatment and hopes that others will try it.

#### BASAL METABOLISM AND STERILITY

The relation between the thyroid and the ovaries is generally recognized, and Dr. J. C. Litzenberg, of Minneapolis, has been conducting some interesting studies regarding the relation between hypothyroidism and sterility. As a result of this work he believes that:

- 1.—The relation between the thyroid gland and the ovary is well known.
- 2.—Myxedema is certainly a cause of sterility.
- 3.—Lesser degrees of hypothyroidism are, by the results of our investigation, apparently also a cause (or index of a cause) of sterility.
- 4.—A normal basal metabolism rate is apparently necessary to conception and to a normal continuance of pregnancy.
- 5.—Properly supervised thyroid medication will restore the basal metabolic rate to normal and in some cases result in conception.
- 6.—Women who habitually abort should have their basal metabolic rate taken.

#### PHYSIOLOGIC ACTION OF EPHEDRINE

Drs. R. D. Rudolph and J. D. Graham, of the University of Toronto, have followed up the work on the physiologic effects of ephedrine done by Chen and Schmidt, and have reported their results in the *Am. J. M. Sc.*, for March, 1927. These results may be summarized as follows:

*Effect on the Circulation.*—Ephedrine causes a prompt and decided rise in blood-pressure which is maintained ten times longer than that caused by epinephrin.

*Effect on the heart.*—Ephedrine causes an increase in the rate and strength of the heart beat. When given to cats in large



or repeated doses it seems to have a harmful effect on the heart muscle, causing extrasystoles.

**Effect on Blood-vessels.**—Ephedrine causes general vasoconstriction, most marked in the splanchnic vessels and the limbs.

**Effect on Smooth Muscle.**—Ephedrine stimulates the smooth muscle of the uterus and relaxes that of the bronchi.

**Local Effect on Mucous Membranes.**—Ephedrine causes shrinking of the mucous membranes, especially in the nose, in which respect it is superior to epinephrin, and there are no unpleasant sequelae.

**Clinical Effects.**—Ephedrine was given to patients in doses of 50 to 100 mgm. and the pulse rate and blood-pressure carefully observed for several hours. Solutions may be made up in large quantities as they are not affected by air and light.

When given by mouth, ephedrine acted within 30 minutes (maximum effect in 45 minutes) and raised the systolic blood-pressure from 6 to 56 mm. (average over 30 mm.), without any appreciable effect on the diastolic pressure. The pulse was slowed and strengthened. (Note: different from the effect on animals.)

Examination of the urine showed no evidence of irritating effect on the kidneys.

When given hypodermically, in the same dosage, the effects appeared a little earlier and were slightly stronger; otherwise the same.

**Intravenously** the action of ephedrine is very rapid and much smaller doses are required to produce equal results, otherwise it is the same.

In *spinal anesthesia* the blood-pressure frequently falls to an alarming degree. In 26 such cases, intravenous doses of 50 to 100 mgm. of ephedrine caused a prompt and prolonged rise in blood-pressure (averaging 68 mm.) with slowing and strengthening of the heart beat. This effect lasted about 1½ hours. Good results are obtained by giving smaller doses two or three minutes after giving the anesthetic to prevent the fall of blood-pressure; or before the anesthetic in cases where the pressure is below 110 mm.

There is reason to believe that ephedrine is of value, intravenously, in *surgical shock*.

Ephedrine has much the same action as has epinephrin but these effects are much more lasting and are produced when the drug is given by mouth.

#### ULTRAVIOLET IN PULMONARY TUBERCULOSIS

Actinotherapy cannot be safely applied at random to patients with pulmonary tuberculosis, but it is helpful in carefully selected cases.

In *The Lancet* (London) for October 2, 1926, Dr. C. B. Heald gives some practical suggestions. He has observed that certain cases respond better to ultraviolet rays from a distance than to shorter exposures with the source of the rays nearer to the patient, and these are the rules for treatment he has worked out and used successfully:

1.—That the initial dose should be one-quarter of the dose that will give the patient an erythema at 20 in., as tested by the "spot" method on the forearm.

2.—That this quarter dose be secured by the appropriate increase of distance and not by a diminution of time.

3.—That the skin first exposed be the legs and that a gradually increasing area of skin be added day by day. This being the only increase in dosage until the whole body is receiving this quarter erythema dose.

4.—That subsequent increase in dosage be obtained by increasing the time of exposure with little or no diminution of the distance.

#### LIVER FEEDING IN PERNICIOUS ANEMIA

Drs. Murphy, Monroe and Fitz, of Boston, have followed the suggestion of Minot and Murphy relative to the use of a diet consisting essentially of liver, kidneys, lean meat, green vegetables and fruit, in the treatment of pernicious anemia, and report their results in *J.A.M.A.*, for April 16, 1927.

In substance, they note that each of 10 patients so treated showed a prompt and rapid remission of the anemia and a general improvement. New, young, red blood cells, from the bone marrow, and reticulocytes soon appeared in the blood. There was a marked reaction in the bone marrow and a fall of the icterus index of the serum, together with an increase in the red cell count, the hemoglobin and the total volume of blood. The morphologic appearance of the cells returned to normal and the color index fell to 1 or less.

#### BACTERICIDAL PROPERTIES OF METAPHEN

The medical profession has long been seeking powerful germicides which are, at the same time, relatively nontoxic to human beings. Metaphen seems to be a valuable addition to the rather small list of such drugs.

This mercurial compound has been investigated by Drs. G. W. Raiziss and M. Severac, of Philadelphia, and their results are reported in *J. Infec. Dis.* for March, 1927.

These workers made careful studies regarding the bactericidal effects of metaphen and other drugs, in various dilutions and applied for varying intervals, and found that metaphen was decidedly superior to the other drugs used (bichloride of mercury, mercurochrome and phenol), not only in destroying the cocci, but also with all types of bacteria, especially anthrax, for the destruction of which it was found to be 11 times as powerful as bichloride of mercury; 615 times more powerful than mercurochrome; and 2451 as efficient as phenol, if left in contact with the organisms for 1 hour.

Studies of the toxicity of the various drugs used, by intramuscular injection, showed that, grain for grain, metaphen is



less toxic than mercuric chloride, but more so than mercurochrome or phenol. Considering, however, its high germicidal power and its low affinity for tissue proteins, its advantages are obvious. Given orally it is relatively nontoxic, so that its absorption from wounds or the swallowing of small quantities will not prove dangerous.

The special field of metaphen is in the treatment of infected mucous membranes (colds, rhinitis, sinus infections, conjunctivitis, gingivitis, etc.) and in sterilizing the skin and instruments for surgical work. A 1:1,000 solution instilled into eyes which had accidentally been contaminated with gonorrheal and syphilitic secretions prevented the development of these infections. In therapeutic dilutions it is nonirritating.

#### DYES IN GLYCERIN AS ANTISEPTICS

Dr. Valdemar Pleth, of Stockton, Calif., has used 25 percent propyl alcohol, as a disinfectant for the skin and for infected wounds, with good success. He also finds a 30-percent solution of glycerin useful and is convinced that its effect on the body cells is decidedly less than that on bacteria.

In *Am. J. of S.* for March, 1927, he reports his results with various dyes (malachite green, crystal violet, fuchsin, acriflavine, mercurochrome, etc.), dissolved in 25 percent propyl alcohol or in 30 percent glycerin and concludes that glycerin is an efficient antiseptic and is not toxic to leucocytes in strengths below 41 percent; that glycerin-dye suspensions do not irritate even sensitive wounds; that the best bactericidal results are obtained by applying the solutions hot; and that the healing time of infected wounds is much reduced by the use of these agents.

#### SODIUM THIOSULPHATE IN ECZEMA

Drs. Thorne, Van Eyck, Marples and Meyers, writing in *Urol. & Cutan. Rev.* for September, 1926, express the belief that eczema and edema are to be considered from one point of view and that both are the result of alterations in the body chemistry by which an undue amount of fluid is retained in or excreted by the skin. There is a known relation to the amount of sugar and chlorides in the blood; and the condition of the liver and the osmotic pressure of the individual cells no doubt play a part. There seems to be a deposition of chlorides and carbohydrates in the skin.

The authors believe that sodium thiosulphate assists materially in changing the equilibrium of the cells, so that substances abnormally present in the skin return to the blood stream. They believe, further, that this salt has a distinct action on the autonomic nervous system, causing stimuli which relieve the existing physiologic dysfunction.

They have treated 104 cases of eczema with intravenous injections of 0.5 gm. of sodium thiosulphate, three times a week (the intake of carbohydrates and chlorides being meanwhile restricted), and have noted

prompt and positive amelioration of the symptoms in 80 percent of these cases, the first sign of clinical improvement being a decrease in the edema, followed, after a few days, by desquamation.

#### COLLECTIONS

In *Med. Economics* for January, 1927, Harry Botsford makes some interesting suggestions about collecting doctors' accounts.

The first thing is to keep your accounts in shape and send out statements *regularly* on the *first of every month*, the same as others do. People expect to receive and pay their bills between the first and the tenth of each month, and habit is strong. If the doctor's bill is among the others it has a good chance of being paid, along with the others.

If you do not pay your grocer and milkman by the tenth they begin to ask why. The time to begin gentle pressure for settlement is on the *eleventh of the month*. If you let things slide your debtors will assume that you do not need the money and will be in no hurry to pay.

It is well to know all you can about your debtors so as to know how to approach them.

When undertaking the care of a case it is proper and necessary to have a *definite understanding* as to who is to pay the bill and how and when it will be paid.

#### ELEVATORS IN SCHOOLS

A good many physicians are confident that stair climbing is distinctly detrimental to the health of many children and may cause or aggravate abnormalities of the heart.

Much has been done in our schools to improve the ventilation and other sanitary conditions as well as the eating habits of the students, but even in city schools, where the buildings are four or five or more stories high, the pupils have to climb for an education.

Dr. Morris H. Kahn, in *Fraser's Notes* for November, 1926, urges that physicians interest themselves in the matter of elevators in school buildings, as a matter of health conservation for the children.

#### NASAL SINUS DISEASE

Every physician ought to eliminate the word "catarrh" from his professional vocabulary. Continued nasal discharges mean sinus disease.

Dr. Irving W. Voorhees sums up the case very well in *Fraser's Notes* for March, 1927, as follows:—

1—The word "catarrh", which in the original Greek means a flowing down, has no significance apart from sinus infection. It should not be used to describe acute rhinitis.

2—Recurring headaches and persistent yellowish or greenish post-nasal discharges are pathognomonic of sinus disease.

3—Nasal obstruction is frequently concomitant with sinus disease, but not always. There are cases of atrophic rhinitis, caused by sinus disease, where the nose is, of course, wide open.

4—The diagnosis of chronic sinusitis is by no means difficult and the number of missed cases ought to be materially reduced.

5—The essentials of diagnosis are a careful history, satisfactory clinical examination, including trans-illumination, irrigation, aspiration with a suction apparatus and, finally, x-ray pictures.

6—Acute sinus infections usually recover through relatively simple treatment. Chronic sinus infections are difficult to cure but in many cases cure can be effected through operation and prolonged treatment.

#### MECHANISM OF PAIN IN GASTRIC AND DUODENAL ULCER

Dr. Walter L. Palmer, of Chicago, has carried out extensive experiments to determine the nature and mechanism of the pain which is so constant a feature of ulcer of the stomach and duodenum and has reported his results in *Arch. Int. Med.* for January, 1927.

As a result of his studies, Palmer is convinced that:

Peptic ulcer with true achlorhydria occurs rarely, and the question of the occurrence and type of pain in such cases is unsettled.

Hydrochloric acid is the normal stimulus to the pain-producing mechanism of sensitive peptic ulcers.

Normal gastric peristalsis may be an adequate mechanical stimulus in very sensitive ulcers.

Hydrochloric acid may sensitize both the sensory and motor gastric mechanisms.

No evidence has been found to support the view that hyperchlorhydria may cause typical ulcer pain in the absence of a definite organic lesion of the gastric or duodenal mucosa.

Exact localization and differentiation of different types of enteric pain may be very difficult, if not, at times, impossible.

Under differing conditions, acid irritation and muscle tension may be responsible for all, a part, or none of the pain of gastric carcinoma.

#### CALCIUM METABOLISM AND THE PARATHYROID GLAND

Calcium was considered to have little value in therapeutics until the study of the parathyroid glands developed, but now its importance in the human economy is being recognized and it is being recommended for a wide variety of disease states, including all forms of anaphylaxis and allergy, tetany, vagotonic diarrhea, chilblains, night sweats, delayed dentition, asthma, etc.

In *Northwest Med.* for April, 1927, Dr. C. F. Davidson, of Seattle, Wash., reviews the recent studies of the calcium ion, in

connection with parathyroid substance, and the subject of calcium metabolism in general.

The metabolic importance of calcium is closely bound up with that of phosphorus, and the two seem to bear a close relation to each other, so that measures which increase the available lime in the body appear to increase the phosphorus also.

With all these, vitamin D also apparently plays a part, this substance being furnished by cod-liver oil and other foods or by ultraviolet rays.

Adults need, roughly, 1 Gm. of calcium per day; children need twice that amount. Milk contains a higher percentage of lime than do most foods, but the legumes and eggs are also rich in this element.

The calcium in milk is most easily utilized and this food should be taken by adults as well as by children. A growing child needs at least a quart of milk a day.

An excess of calcium, no matter how it enters the body, can do no harm.

#### MARRIAGE AND ILL HEALTH

Dr. Norman Haire, of London, believes that conjugal infelicity is at the bottom of many of the cases that come to the doctor, especially the neuroses. He asks every patient who comes to him, "Are you happily married?" as regularly as he asks, "Is your appetite good?" and "Do your bowels move daily?" The answer, in a majority of cases, is in the negative.

Haire briefly reviews the history and development of monogamy and quotes Bauer to the effect that this condition exists only when two persons of opposite sex remain absolutely faithful to each other purely from a desire to do so, and not because of morality, ethics or the opinion of the world.

The first prerequisite of marriage should be mutual sex attraction, and this motive must continue if the marriage is to be happy. Community of tastes and interests and economic, social and intellectual equality are highly desirable for conjugal happiness but are insufficient without continued mutual sex interest.

Familiarity dulls the edge of sex appetite, after a time, and then the husband and wife should both learn and practice the *art of love*, which has been too generally repressed and forgotten by all Anglo-Saxon peoples. Such practice would vastly diminish the number of unhappy marriages.

The doctor discusses some of the aspects of extramarital sex relations, from the biologic and economic standpoints, and argues strongly in favor of birth control, directed by the medical profession.

He further shows that the birth and rearing of children is the only rational ground for marriage, and the childless couples or those whose children are grown, who find themselves mutually uncongenial, should separate. He also advocates separation, for the benefit of the children, in cases where the parents are so ill-mated as to create an unwholesome atmosphere of discord in the home.

Some way, he says, must be found to encourage and facilitate mating soon after maturity and to render divorce easier, to take care of possible mistakes.

### GOOD AND BAD DRUGS

Dr. Bernard Fantus, of Chicago, who knows his drugs far better than most, makes some pertinent remarks, in *Bull. of Pharmacy* for January, 1927, regarding drugs which are "good, bad and indifferent."

#### CALOMEL

Calomel is the best purgative to give when vomiting is present, as it does not irritate the stomach and is retained. It is useful as a one-dose evacuant in diarrhea and also in cases of "biliousness"—whatever that may be.

It is harmful in spastic constipation and dangerous in intestinal obstruction, because of the probability of mercurialism. Calomel should never be used where constipation is accompanied by pain in the bowel nor as an habitual cathartic.

#### LIQUID PETROLATUM

Mineral oil is useful in the painful constipation of the spastic colon and colitis and may be used habitually without danger. It is a good remedy in certain cases of abdominal pain, especially when occurring in the left side, whether the patient seems constipated or not.

It is not absorbed and therefore will not increase the weight. It can be used in cookery for the obese.

#### SALINE LAXATIVES

If pain is in the right side of the abdomen, the salines are better than oil. They favor intestinal drainage, which probably explains their value in cholecystitis and chronic appendicitis. These laxatives are the basis of the "Karlsbad cure".

A modification of the Karlsbad water may be made and used at home, with good results, in gall-bladder cases. This contains sodium citrate, 1 part; sodium bicarbonate, 2 parts; sodium phosphate, 4 parts. A teaspoonful of this mixture is to be taken in a glass of hot water, half an hour before each meal. When the patient is better, one dose before breakfast may be enough. Regulate the dosage so as to give one and not more than two stools in 24 hours. This

should be helpful in chronic appendicitis cases, also.

#### CHALK

Chalk is a more satisfactory alkali than is sodium bicarbonate, in cases of gastric hyperacidity. Any excess of the carbonate acts as a protective coating over an ulcer or the sensitive mucosa. It is better than the "Sippy powders", and a level teaspoonful of calcium carbonate, taken midway between meals is soothing and protective and, if continued long enough and combined with a proper, nonirritating diet, will save many patients from operation for gastric ulcer.

Chalk should always be used in infantile diarrhea with acid stools.

#### ALCOHOL AND OPIATES

Alcohol is of little value in medicine except to make people "feel better". It merely benumbs the mind while the disease runs its course. It may have a place in incurable conditions and in old age.

The same things are true of opiates. The euphoria produced by all these drugs constitutes their danger. When it wears off the patients want more. Capable doctors need little of such medicines.

### EPHEDRINE AND BLOOD-SUGAR

Dr. J. Allen Wilson, of the University of Wisconsin, has investigated the effect of ephedrine on the blood-sugar level of animals and, in *J. Pharm. & Exp. Therap.* for January, 1927, reports his conclusions as follows:

1.—Ephedrine sulphate, injected intravenously or subcutaneously in doses of from 10 to 15 mgm. per kilo, produces a definite increase in the blood-sugar level in dogs.

2.—The response to similar doses, in rabbits, is less uniform and generally less marked. Definite elevation of the blood-sugar concentration is, however, found following intravenous injection of doses ranging from 20 to 30 mgm. per kilogram.

3.—Very rough comparisons indicate that doses of ephedrine, very much stronger than those used to produce effects comparable to the clinical actions of epinephrin, have much less marked effect on blood-sugar than do the epinephrin injections.

# New Books

## HUTCHISON: MEDICAL TREATMENT

THE ELEMENTS OF MEDICAL TREATMENT. By Robert Hutchison, M.D., F.R.C.P., Physician to the London Hospital and to the Hospital for Sick Children, Great Ormond Street. New York: William Wood and Company. 1926. Price \$3.00.

Students, nowadays, are so occupied in learning bacteriology, pathology and laboratory technic that they lose sight of the fact that the primary purpose of their studies is to cure sick people. This little book will prove a pleasant corrective to such an attitude.

The author has not attempted to write an exhaustive treatise on therapeutics but has clearly and simply stated the most important principles which underlie the treatment of disease, illustrating his remarks with cases which show the specific applications of the principles.

He deals with fever, pain, insomnia, constipation, anemia, hemorrhage and a number of other general conditions and outlines their management by means of drugs and other measures. There are chapters on the endocrines, insulin, psychotherapy and minor medical operations, such as venesection, blood transfusion, intravenous medication, paracentesis, etc.

If this book could be placed in the hands of all medical students, from the freshman year onward, it would do much to rectify a lopsided conception of their work; and there are many practitioners who can study it with considerable profit.

## BARTLETT: GOITER

THE SURGICAL TREATMENT OF GOITER. By Willard Bartlett, A.B., A.M., M.D., D.Sc., F.A.C.S., St. Louis. With Foreword by Dr. Charles H. Mayo. St. Louis: The C. V. Mosby Co. 1926. Price \$8.50.

Bartlett is a surgical philosopher whose philosophy has high but very practical aims. Himself a keen student and brilliant operator, he has given us in the present volume a monograph, which was really badly needed by all interested in the surgery of goiter.

But the book is more than a monograph on the operative treatment of this still much disputed malady. Wilson, of Rochester, Minn., contributes a chapter on the pathology of goiter and Grant, of St. Louis, presents a valuable study of the heart in goiter. Hansel, of St. Louis, has given a very practical chapter on laryngeal complications. The remaining eighteen chapters are from the pen of the author and each is well rounded out and presented in masterly fashion.

Bartlett has had a rich experience, has given the subject much thought and consideration.

A description of the individual chapters is impossible but their value can perhaps best be realized when we assure the reader that by word and illustration the author is taking us through his wards, telling us all there is to be told about the character of proper treatment, the pitfalls that await us and how to avoid them. He even goes a step farther than one would expect in a book of this character, and devotes a short talk on what a goiter clinic should be like.

G. M. B.

## BARTON AND YATER: SYMPTOM DIAGNOSIS

SYMPTOM DIAGNOSIS; REGIONAL AND GENERAL. By Wilfred M. Barton, A.M., M.D., F.A.C.P., Associate Professor of Medicine, Medical Department of Georgetown University; and Wallace M. Yater, A.B., M.D., Fellow in Medicine, Mayo Foundation, Rochester. New York and London: D. Appleton and Company. 1927. Price \$10.00.

When a patient comes into a physician's office he does so, as a rule, because of one prominent symptom.

The doctor inquires carefully into the history of the case and then has the patient prepare for an examination. While this is being done there is an opportunity to refresh his mind as to the various diseases in which the most prominent symptom or symptoms may occur and so to be prepared to search for confirmatory evidence of one or other of the morbid states which is most likely to be present.

This volume is not a textbook and is not intended to be placed on the library shelves at all. It is for the doctor's desk, to enable him to make more accurate diagnoses with less expenditure of time.

In the first part of the book are grouped the regional symptoms, classified under various parts or regions (head, ear, tongue, abdomen, etc.). Under each region the symptoms are listed first and then arranged in order of their most frequent occurrence as a cause for seeking medical aid; and under each symptom, the conditions in which it most frequently appears, with differential diagnostic notes. The rare conditions in which the symptom occurs are grouped at the end.

But there are certain symptoms which affect the body as a whole, and the consideration of these general symptoms constitutes a considerable section of the volume, being arranged in alphabetical order.

Bold-face subheads are freely used, to facilitate quick reference, and cross references are abundant. An index renders all the material in the book readily available.

We have seen few books which bade fair to offer the physician such genuine and timely assistance in making accurate diag-



noses as does this one, and we feel that any practitioner who fails to avail himself of the help here offered is doing his patients and himself an injustice.

#### OUSPENSKY: TERTIUM ORGANUM

**TERTIUM ORGANUM.** The Third Canon of Thought. A Key to the Enigmas of the World. By P. D. Ouspensky. Translated from the Russian by Nicholas Bessaraboff and Claude Bragdon—With an Introduction by Claude Bragdon. Second American Edition, Authorized and Revised. The Mystery of Space and Time. Shadows and Reality, Occultism and Love. Animated Nature. Voices of the Stones. Mathematics of the Infinite. The Logic of Ecstasy. Mystical Theosophy. Cosmic Consciousness. The New Morality. Birth of the Superman. New York: Alfred A. Knopf, 1926. Price \$5.00.

We do our day's work as well as we are able, and after that we sleep. But sometimes, deep down within us, there is a troubled wonder as to what it is all about. Some turn these questionings aside or smother them under a mass of details; but others find that they return to disturb their peace and long to find an answer. Here it is, for those who are not afraid to work and to think.

The title is a bold one. Truly, a book which is announced as being of the same type as Aristotle's "Organon" and Roger Bacon's "Novum Organum" is assuming a large contract—no less, in fact, than the reorganization of the world's thought.

Einstein has demonstrated how mathematics underlies and pervades all human knowledge and thought, and Ouspensky is deeply and fundamentally a mathematician, far surpassing the German in the scope and boldness of his concepts. But while Einstein stated his hypotheses in mathematical terms, so that his readers are daunted before they begin, this Russian philosopher has thrown overboard the jargon of incomprehensibility and has drawn his illustrations and figures of speech from the homely affairs of every-day life. The mathematical ideas which come to the surface, as such, are those which are well understood by an intelligent high school student and need frighten no one.

The author considers certain questions which have baffled the human mind for thousands of years—the nature of space, time, motion, causality, free-will and determination—and deals with them according to the mathematical method, showing that mathematics is the problem of world order, and therefore underlies every aspect of human life.

His arguments are simple, logical, sensible, and Bragdon has been unusually successful in rendering his language into English which is clear, smooth and easy to read.

Such subjects appear as, What Do We Know? What is Time? The Memory of Animals; Correct Understanding of Love; Purification of the Emotions; The Sensation of Infinity, and many others.

As a sample of his flavor, he starts with the very elementary assumption that the universe consists of "I" and of that which is not "I", and demonstrates, by perfectly clear and logical steps, that time is the fourth dimension.

We do not recommend this book to the casual and thoughtless reader. Such will be unlikely to go beyond the first chapter, in any case. But to the man whose mind is active, open and fearless it will be a mine of joy and inspiration, for we believe this to be the profoundest and most epoch-making book of this generation, if not of this century, and feel that the title is not presumptuous—it is, indeed, "The Third Canon of Thought."

#### GRAHAM: SURGERY

**THE PRATICAL MEDICINE SERIES. GENERAL SURGERY.** Edited by Everts A. Graham, Professor of Surgery, Washington University School of Medicine. Series 1926. Chicago. The Year Book Publisher. 1927. Price \$3.00.

The present volume which reviews and abstracts the more important contributions to general surgery that have appeared in the medical publications of the world for the year 1926, does not materially differ from the preceding ones. Dr. Graham, who succeeds the late Dr. Ochsner as editor of the volume on Surgery, evidently has all the facilities to continue the work of bringing to the student's desk a brief abstract of the year's attainment in general surgery. It is noted that editorial comments are not so numerous as in preceding volumes, but whatever commentaries have been made are to the point.

The book contains 700 pages and many illustrations to convince the reader that an enormous amount of literary work is presented to the profession for a small fee. Paper, print and binding are the same in size and character as all preceding issues.

G. M. B.

#### COMBRIE: MEDICAL CYCLOPEDIA

**BLACK'S MEDICAL CYCLOPEDIA.** By John D. Comrie, M.A., B.Sc., M.D., F.R.C.P. Edin., Lecturer on Practice of Medicine in the School of the Royal Colleges at Edinburgh; Lecturer on History of Medicine, University of Edinburgh; Lecturer on Clinical Medicine, University of Edinburgh, Etc. Eighth Edition, Entirely Reset. Containing Over 500 Illustrations in the Text and Two Full-Page Plates in Colour. London: A. & C. Black, Ltd. New York: The Macmillan Company. 1926. Price \$6.00.

This book is intended for the use of nurses and others who have occasion to attend the sick, teachers, nonmedical professional men, health visitors, employers, members of boards having to do with health matters and any persons whose work connects them in any way with health matters.

The language used is not that of a medical textbook, nor is it the colloquial speech of the average layman. It presupposes a reasonable knowledge of the phraseology of



general science and seems well adapted to the needs of the classes of people for whom it is intended.

Being intended for nonmedical readers, all discussions of the details of diagnosis, materia medica and surgical operations are omitted.

The material is arranged alphabetically, as it is in a dictionary or encyclopedia, and where necessary simple pictures illustrate the text. The paper and typography are satisfactory and the book contains nearly a thousand pages.

The revision for the eighth edition has brought the information reasonably up to date and added a number of illustrations.

This volume should satisfactorily serve the purpose for which it is intended.

#### KNOPF: BIRTH CONTROL

THE MEDICAL, SOCIAL, ECONOMIC, MORAL AND RELIGIOUS ASPECTS OF BIRTH CONTROL. By S. Adolphus Knopf, M.D. (Univ. New York and Paris), Formerly Professor of Phthisiotherapy, N. Y. Post-Graduate Med. School and Hosp. Third Edition, Revised and Enlarged; based upon an address delivered on December 21, 1925, at the New York Academy of Medicine before the Medical Association of the Greater City of New York, and printed in the *Medical Journal and Record* of January 6, 1926. New York, 16 West 95th St.: S. Adolphus Knopf. Price 25c.

In this brief pamphlet the case for birth control, from all points of view, is clearly, logically and forcibly set forth by a man who knows, by personal experience, whereof he speaks and who, moreover is one of the ablest writers of powerful and elegant English who now adorn the medical profession.

We sincerely recommend this little book to all physicians. Its price is so insignificant that one can afford to distribute a few copies among influential people who are open-minded and have judgment. Such distribution may help to hasten the day when doctors can legally do what their consciences now tell them is right.

#### LOWSLEY AND KIRWIN: UROLOGY

A TEXT BOOK OF UROLOGY. By Oswald Swinney Lowsley and Thomas Joseph Kirwin. Philadelphia and New York: Lea and Febiger. 1926. Price \$10.00.

The two authors stand for the best in their chosen specialty, and their many years of painstaking work in the James Buchanan Brady Foundation of the New York Hospital is splendidly reflected in this work of nearly 700 pages, each of which is terse, yet replete with information. There is no evidence of padding and its general make-up shows it to be a real textbook.

Thirteen full-size plates in colors and 233 illustrations, each of which is clearly printed, irrespective whether it is a reproduction of an x-ray plate, an instrument, a pathologic condition or an operation, will

prove of great interest to all who seek the scientific as well as the purely clinical in a textbook.

The work begins with an historic introduction, which is written in an entertaining manner. Two chapters are devoted to diagnostic procedures and methods, while in the body of the book the diseases of the entire genitourinary apparatus, from the prepuce to the kidneys, are taken up in separate chapters.

Each chapter has appended a rich bibliography, which will prove of value to those who desire to investigate any subject in greater detail.

It is noted that the authors have treated the urethroscope and urethroscopy in a step-fatherly manner and that the action of certain newer agents, particularly diathermy, has been explained in a way somewhat at variance with present-day conception, but these are merely technical considerations in a branch of medicine and surgery which is still too recent for a definite nomenclature.

The diction is excellent and the whole manner in which the subject of urology is handled in this book is one of great dignity and reserve, characteristic of true scientists.

The general practitioner and especially the general surgeon will find this volume a reliable guide to correct urologic diagnosis and rational therapy.

G. M. B.

#### RADLEY: OPERATIONS

THIS BUSINESS OF OPERATIONS. By James Radley. Foreword by J. M. Withrow, M.D., Chief of Staff, Christ Hospital, Cincinnati. Cincinnati: The Digest Publishing Company. 1927.

Few more beautiful and sincere tributes to the medical and nursing professions have ever been penned than this, by a man who thought that surgeons were butchers and hospitals slaughter houses—until he went to a hospital for an operation and found out the truth at first hand.

If every physician would keep a copy of this little book on the table in his waiting room and, perhaps, keep an extra copy or two to lend to those who had started reading it while waiting and wanted to finish, it would be one of the finest advertisements of medical service which could be accomplished.

#### CATHCART: CHRONIC DEAFNESS AND THE ELECTROPHONE

THE TREATMENT OF CHRONIC DEAFNESS BY THE ELECTROPHONOIDE METHOD OF ZUNDBURG. By George C. Cathcart, M.A., M.D., Consulting Surgeon to the Throat Hospital, Golden Square, Late Member of The Special Aural Board Ministry of Pensions. London and New York: Humphrey Milford, Oxford University Press. 1926. Price \$1.35.

The electrophone is not at all widely known or used in this country and for that

reason, particularly, this little book of 88 pages will be of interest chiefly to aurists who must keep abreast of the progress in their line both in this and other countries and to those who are themselves deaf and are studying all possibilities for a cure. Physicians in general need to know that there is such an instrument and what it can be expected to do.

#### LEADBEATER: FORCE CENTERS

THE CHAKRAS. *A Monograph, by The Rt. Rev. C. W. Leadbeater. Chicago, The Theosophical Press. 1927. Price \$6.00.*

Up to a few years ago, the only way, known to orthodox science, in which a human being could absorb energy was from the food he ate. The ultraviolet radiations were invisible and unknown. Now they are a matter of every-day experience to all well informed persons and we realize that they actually contribute to the energy available for our use, though we have hardly begun to learn how they do so.

Now comes an occult scientist who declares that there are other means whereby the body absorbs types of energy not yet generally known and recognized. These statements may seem fantastic to some, but not more so than a description of the radio would have sounded 10 or 15 years ago.

Briefly, the author explains that there are important physical energies which are needed for our highest development, and that the body contains organs for specializing and utilizing these energies—organs which can be developed by conscious effort, the same as other organs. These are known as the Chakras.

Leadbeater and others have developed their powers of vision until they can see these organs. They have been described a number of times by various writers, but never so fully and accurately as is done in this volume, and no effort has heretofore been made to picture them.

There are seven of the Chakras and they are connected with the cerebrospinal and sympathetic nervous system. These connections and the functions of the various force centers are described, clearly and in the manner and language of the scientist, and the history of their recognition and study is traced back for hundreds of years, to the works of the oriental students who first recognized and explained them.

The volume is a beautiful piece of book-making, 10x12 inches in size and bound in blue buckram. The paper and type are excellent and tables, charts and diagrams are used freely.

The glory of the book is the nine superb, full-page color plates of the Chakras and their connections, printed in Australia, under Bishop Leadbeater's personal supervision. Nothing like them has ever been seen before.

To the man who refuses to admit the reality of anything he can not poke his fingers into, this book will be foolishness and a waste of time. To those who have followed the march of scientific discovery and realize that it is *going to continue* and

are keen to anticipate its next steps, it will be immensely interesting, whether they believe it or not. To the open-minded student of occult science it is an indispensable handbook on an important subject.

#### FINNEY: SOCIAL SCIENCE

GENERAL SOCIAL SCIENCE. *By Ross L. Finney, Ph.D., Assistant Professor of Educational Sociology, University of Minnesota. New York: The Macmillan Company. 1926. Price \$1.60.*

This is a school textbook, not on "civics", as it is ordinarily understood (for it aims to inform the student on more than merely his relation to the state), but upon all the complex social relations which have been developed by modern life.

It is written simply and clearly and, to a trained sociologist, would appear very elementary; but most of us are not trained sociologists and can gain many valuable suggestions from this volume which will help us to understand the problems of our fellow men and make us better human beings.

#### MEDICAL CLINICS OF NORTH AMERICA

This January, 1927, number of the well-known Clinics is by New Yorkers and contains such practical studies as The Diuretic Action of Urea and High Protein Diets, by Dr. S. E. King; Syphilis of the Nervous System, by Dr. Randall Hoyt; Treatment of Arthritis, by Dr. B. F. Donaldson; Neurasthenia, by Dr. A. F. Kraetzer; and a number of others.

All the pleasant things we have said about former numbers of the Clinics apply also to this one. They are vastly interesting and helpful.

The Medical Clinics of North America are issued serially, one number every other month. Per Clinic year (July to May), Paper \$12.00; Cloth \$16.00 net. Philadelphia: W. B. Saunders Company.

#### COPE: ACUTE ABDOMEN

THE TREATMENT OF THE ACUTE ABDOMEN, OPERATIVE AND POSTOPERATIVE. *By Zachary Cope, Late Hunterian Professor and Arris and Gale Lecturer, Royal College of Surgeons. London and New York: Oxford University Press. 1926. Price \$3.50.*

This is a companion volume to Cope's "Acute Abdominal Diseases" which was favorably reviewed in our December, 1925 issue.

The present volume contains 232 pages of text, divided into twenty chapters. The most interesting chapters deal with the treatment of acute appendicitis, perforated peptic ulcer, acute pancreatitis, acute obstruction of the small intestines, acute intussusception, strangulated hernia, ectopic gestation, acute cholecystitis and general peritonitis.

The various operative methods are described step to step in a lucid manner and the after care is discussed in an extremely practical and simple way.

While the comparatively small volume does not contain anything unknown to experienced surgeons, it has certain advantages over more pretentious volumes, especially for the occasional operator or the general practitioner who is occasionally compelled to render surgical aid under conditions which leave no time to read up. Those who will carefully read and reread this comparatively small volume, will find many practical hints suggested in digestible form, and thereby be better prepared to manage conditions commonly, though ungrammatically, designated as "acute belly".

Diagrammatic and well executed drawings are helpful in visualizing the text, and the usual good print and paper of the Oxford University press makes reading a pleasure rather than a hardship.

We recommend this volume most heartily as a practical manual.

G. M. B.

#### SCHAUFFLER: FORMING GOOD HABITS

**ADVENTURES IN HABIT-CRAFT.** Character in the Making. By Henry Park Schaufler. New York: The Macmillan Company. 1926. Price \$2.00.

Most habits connected with our daily life, and particularly with our character and our reaction to the world and its vicissitudes, are formed in childhood, and the author of this volume has devised a method whereby such habits may be inculcated in a practical and objective manner.

This is a textbook for those engaged in child training and consists of a considerable number of exercises, with discussions of their application and the results obtained. A number of full page plates illustrate apparatus and drawings which were made by the children in order to illustrate the work done in the classes.

A valuable and practical book for all who are engaged in child training.

#### EVANS: PERNICIOUS ANEMIA

**PERNICIOUS ANEMIA.** By Frank A. Evans, M.D. Baltimore: The Williams & Wilkins Company. 1926. \$2.50.

The criteria for diagnosis of pernicious anemia are becoming more rigid as we learn more about the disease, but even so it is not rare.

Of late there has been much active study and discussion of this condition and it is time that this extensive material should be gone over and the positive and definite findings classified and correlated. This service Dr. Evans has undertaken to render.

The Chapters deal with Definition and Classification, Occurrence, Pathological Anatomy, Etiology, Clinical Description, Diagnosis, Treatment and Prognosis. A considerable bibliography and an index are added.

The author seems to have added little or nothing to our knowledge of pernicious anemia, but the busy practitioner is sure to meet some cases, sooner or later, and a search through the literature would require much time. The book is valuable as a summary of the present status of our knowledge regarding this perplexing and invariably fatal disease.

#### FENTON: SHELL SHOCK

**SHELL SHOCK AND ITS AFTERMATH.** By Norman Fenton, Ph.D., Associate Professor of Psychology, Ohio University; Formerly at Base Hospital 117, A.E.F., and with the National Committee for Mental Hygiene. With an Introduction by Thomas W. Salmon, M.D., Professor of Psychiatry, Columbia University. Illustrated. St. Louis: The C. V. Mosby Company. 1926. Price \$3.00.

A study of the various factors involved in the etiology, development, treatment and prognosis of the condition known as war neurosis, or "shell shock", which was so prevalent among the troops in France and which offered so much material for study by psychologists and psychiatrists during and after the war.

A brief and authoritative resumé of our present knowledge on a subject which is little understood by physicians in general.

#### BAST: ADOLF KUSSMAUL

**THE LIFE AND TIME OF ADOLF KUSSMAUL.** By Theodore H. Bast, Ph.D., Associate Professor of Anatomy, University of Wisconsin Medical School. With a Foreword by William Snow Miller, Emeritus Professor of Anatomy, University of Wisconsin Medical School. New York: Paul B. Hoeber, Inc. 1926. Price \$1.50.

Those who are interested in the biographies of the great in our profession, will find in this interesting volume much to inspire them. Adolf Kussmaul, who lived from 1822 to 1902, was one of the most noted German clinicians, whose contributions to many aspects of clinical medicine have enriched our science. His life reads like a romance, and the surroundings in which he lived and worked, differing as they do from those observed in a free republic, are depicted in a manner to widen our knowledge of life across the ocean.

Medical biography is, unfortunately too little cultivated in this country, and what biographies have been published, concerned physicians and surgeons of this country and Great Britain. But medicine is a universal science and progress is not restricted to political boundaries. It will widen our own horizon if we become familiar with the lives and works of the men to whom we owe a good deal of our present status in medicine, and the present little volume will afford an hour's pleasant yet instructive entertainment.

G. M. B.

### FRENCH AND NUTHALL: LABORATORY METHODS

**MEDICAL LABORATORY METHODS AND TESTS.** By Herbert French, M.A., M.D. (Oxon), F.R.C.P. (Lond.), Physician, Guy's Hospital, Etc., and Tallent Nuthall, M.D. (Lond.), Medical Assistant, Guy's Hospital, Fourth Edition. Chicago: Chicago Medical Book Co., Congress and Honore Sts. 1926. Price \$2.50.

A brief and practical compend of laboratory procedures for students and physicians who do their own routine laboratory work.

It deals with the examination of urine, blood, sputum, pus, gastric contents, skin conditions, serous fluids and cerebrospinal fluid, and gives directions for preserving and staining pathologic specimens.

It is intended as a manual to be used in the laboratory and should serve its purpose well.

### HURST: HOSPITAL HOUSEKEEPING

**HOSPITAL HOUSEKEEPING AND SANITATION.** By Nora P. Hurst, R.N., St. Louis: The C. V. Mosby Company. 1926. Price \$1.25.

A brief manual for students of nursing and of hospital management. Simple and practical suggestions for those interested in hospital housekeeping.

### THOMPSON AND GORDON: RHEUMATIC DISEASES

**CHRONIC RHEUMATIC DISEASES.** Their Diagnosis and Treatment. By F. G. Thompson, M.A. Cantab., M.D., F.R.C.P. Lond., and R. G. Gordon, M.D., D.Sc., M.R.C.P. Edin. London and New York: Humphrey Milford, Oxford University Press. 1926. Price \$2.75.

This short book of about 200 pages is intended as a practical clinical guide for the recognition and treatment of the many conditions which have been loosely grouped under the blanket term of rheumatism. The

book is really a series of clinical lectures and is divided into three parts. In the first, etiologic, part the rheumatic diseases are classed according to the most recent work on their causes, and the treatment found most efficacious for each is clearly stated. In the second part of the book the authors deal with diagnosis and describe the diseases most frequently confused with the chronic rheumatic group which are discussed and differentiated from them.

The principles of treatment are dealt with in the third part.

The book may be considered as an unprejudiced expression of opinion by men of wide clinical experience.

It may be mentioned that the authors describe a special type of arthritis observed in women, i.e., climacteric arthritis, which is believed to be of metabolic rather than of infective or degenerative origin.

Like all the Oxford Medical Publications the typography is excellent.

W. A. B.

### McCRAE: OSLER'S MODERN MEDICINE

**MODERN MEDICINE.** Its Theory and Practice in Original Contributions by American and Foreign Authors. Edited by Sir William Osler, Bart., M.D., F.R.S., Third Edition, Thoroughly Revised. Reedited by Thomas McCrae, M.D. Vol IV. Illustrated. Philadelphia: Lea & Febiger. 1927. Price \$9.00.

The monumental and representative character of Osler's system of medicine is too well known to require extended comments. It consists of authoritative papers on all fields of medicine by men amply able to deal with their subjects, and edited by men who understand that type of work thoroughly.

The present volume—the fourth of the new edition—deals with diseases of the respiratory and circulatory systems.

No general medical library will be complete without this set, and it will prove an excellent reference book for those practitioners who care to invest the price.



# Medical News



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## HEALTH PROTECTION IN KOREA

In common with many primitive peoples, the Koreans have believed for hundreds of years that diseases, and especially epidemics, are visitations of malignant spirits and in order to frighten away such unwelcome visitors they erect these wierd and fantastic "scare-crows" outside of their villages.

Today, however, these devil-scarers are losing prestige, for many native Koreans are studying medicine, dentistry and public health work, so that modern medical science is replacing the superstitions of the past.

## HEART DISEASE AS A CAUSE OF DEATH

In 1925 there were 34,318 deaths in Chicago (11.46 per 1,000). Of these 6,309 were due to heart disease; 3,219 to cancer; and 3,075 to pneumonia. Heart disease killed more than *twice* as many as the next two great killers combined.

In 1905 the Chicago death rate for heart disease, per 100,000, was 108.3; in 1910, 133.9; in 1915, 170.2; in 1920, 179.9; and in 1925, 210.6. The rate has *nearly doubled* in 20 years.

## MULTIPLE PREGNANCIES

The fecundity of some women is enormous and there seem to be those who bear their young in litters.

A note in a recent number of the *J.A.M.A.* reviews the reported cases of this sort, including one where 11 labors yielded 32

children; another where there were 6 twins, 7 triplets and 4 quadruplets. One of the most astonishing cases is that of a woman who gave birth to 14 children in 3 years; triplets, quintuplets and sextuplets. Multiple pregnancy seems to have been a family characteristic in a number of these cases.

It would be interesting to know what the infant mortality was under such conditions and how this guinea-pig type of progeny turned out.



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## AN OLD-TIME DRUG STORE

In the seventeenth century, a drug store was a place where they compounded and sold *drugs*, and there was no chance to question what sort of an institution it was.

Drugs were drugs in those days, too, as evidenced by the massive jars, jugs and boxes. They had no active principles, synthetic chemicals or elegant pharmaceuticals, but pounded up their leaves, barks, roots, berries or whatever, in what looks like a bronze churn.



Today our "drug stores" are miniature emporiums and the compounding of drugs is carefully hidden from the public gaze.

This reproduction of an old French woodcut, made in the sixteen hundreds, gives food for thought and thankfulness to twentieth century physicians and pharmacists.

### THE PLACENTA PROTEIN TEST

The placenta protein test for use in vomiting of pregnancy referred to in *CLINICAL MEDICINE AND SURGERY* (April, 1927, p. 279) is *not for sale* and, therefore, cannot be prescribed.

However, the several dilutions of the placenta protein and a sterile saline solution control, in capillary tubes with a scarificator and rubber bulb ejector, will be sent with full instructions to any reader who requests same and promises to report his experiences with this new test.

Address The Harrower Laboratory, Box 68, Glendale, Cal.



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### THE OLDEST SKELETON IN THE UNITED STATES

In 1911 a skeleton was found in a rock shelter in the Dordogne region of southwestern France. This is the famous Cap-Blanc skeleton.

The archeologists have been studying these bones and their surroundings and are positive that the man who once used them lived at least 25,000 years ago. There has been little change in human osteology since that time.

This interesting skeleton is now in the Field Museum of Natural History, in Chicago.

### MALARIA DECREASING

The U. S. Public Health Service announces that the incidence of malaria is decreasing rapidly and that, at present, it

is practically confined to the south Atlantic coast, the Gulf Coast and the lower Mississippi valley, and is of only local importance in these regions.

Among the factors which have led to this result has been the discovery and encouragement of animals which prey upon the mosquito. The bat, which eats adult mosquitoes in large numbers, has been furnished living and breeding places in a number of malarious districts, and now that it has been discovered that the fish, *Gambusia affinis*, feeds eagerly on mosquito larvae, than finny sanitarian is being industriously cultivated in the southern states.



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### SCARING AWAY DISEASE IN SOUTH AFRICA

The aboriginal idea that disease is the result of the activities of evil spirits is widely prevalent among primitive peoples all over the world, and the work of the "medicine men" is to scare away these malignant beings.

Here is a witch doctor of Serowe, South Africa, gotten up to kill or cure, as the case may be. If he doesn't frighten the patient to death he ought to be able to cause any ordinary disease to beat a hasty retreat.

The curious combination of European clothing with the trappings of savagery is interesting.



Photo by Geo. B. Lake

### WATER SUPPLY IN A MEXICAN CITY

Conditions may be improved by now, but it is not very many years since the supply of water for drinking purposes, in the City of Silao, a town of about 25,000 population, well down in the Republic of Mexico, was delivered in stone jars carried on the backs of burros, as shown in the picture.

The same city had only two chimneys and three bath tubs and there was not a street in the place over which an automobile could drive. The middle of the cobbled street was the sewer.

### CIVIL SERVICE EXAMINATIONS

Applications will be received until June 30, 1927, for appointments as:

Senior Medical Technician (Bacteriology).

Medical Technician (Bacteriology).

Senior Medical Technician (Roentgenology).

Medical Technician (Roentgenology).

Competitors will not be required to report for examination at any place, but will be rated on their education, training, and experience.

Full information and application blanks may be obtained from the United States Civil Service Commission, Washington, D. C., or the secretary of the board of U. S. civil-service examiners at the post office or customhouse in any city.

### PAUL DE KRUIF'S MISSTATEMENTS

In his book, "Microbe Hunters", Paul de Kruif refers to the work of a number of investigators, but his statements are so spurious,

erroneous and misleading (not to say untrue and libelous) that five of the men to whose investigations he makes reference have taken occasion to refute his writings publicly, in the *Lancet* (London) for October 2, 1926. These authorities are Drs. Aldo Castellani, George C. Low, David Nabarro, Ronald Ross and Cuthbert Christy.

De Kruif has gained much notoriety by his publications upon medical subjects and it is an advantage to know how little reliance can be placed upon what he says.

### AMPUTATIONS BEFORE LISTER

We sometimes forget, in these days of clean and safe surgery, just what we owe to Sir Joseph Lister.

In 1853 (seven years before Lister's appointment) the Glasgow Royal Infirmary reported the following mortality rates after amputations:

Primary, 36.6% mortality.

Secondary, from injury, 66.0% mortality.

Secondary, from disease, 38.9% mortality.

Amputations of the forearm; deaths, 1 in 7.

Amputations of the arm; deaths, 2 in 5.

Amputations of the leg; deaths, 1 in 2.1.

Amputations of the thigh; deaths, 1 in 1.6.

# Send for This Literature

To assist doctors in obtaining current literature published by manufacturers of equipment, pharmaceuticals, physicians' supplies, foods, etc., CLINICAL MEDICINE AND SURGERY, North Chicago, Ill., will gladly forward requests for such catalogues, booklets, reprints, etc., as are listed from month to month in this department. Some of the material now available in printed form is shown below, each piece being given a key number. For convenience in ordering, our

readers may use these numbers and simply send requests to this magazine. Our aim is to recommend only current literature which meets the standards of this paper as to reliability and adaptability for physician's use.

Both the literature listed below and the service are free. In addition to this, we will gladly furnish such other information as you may desire regarding additional equipment or medical supplies. Make use of this department.

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